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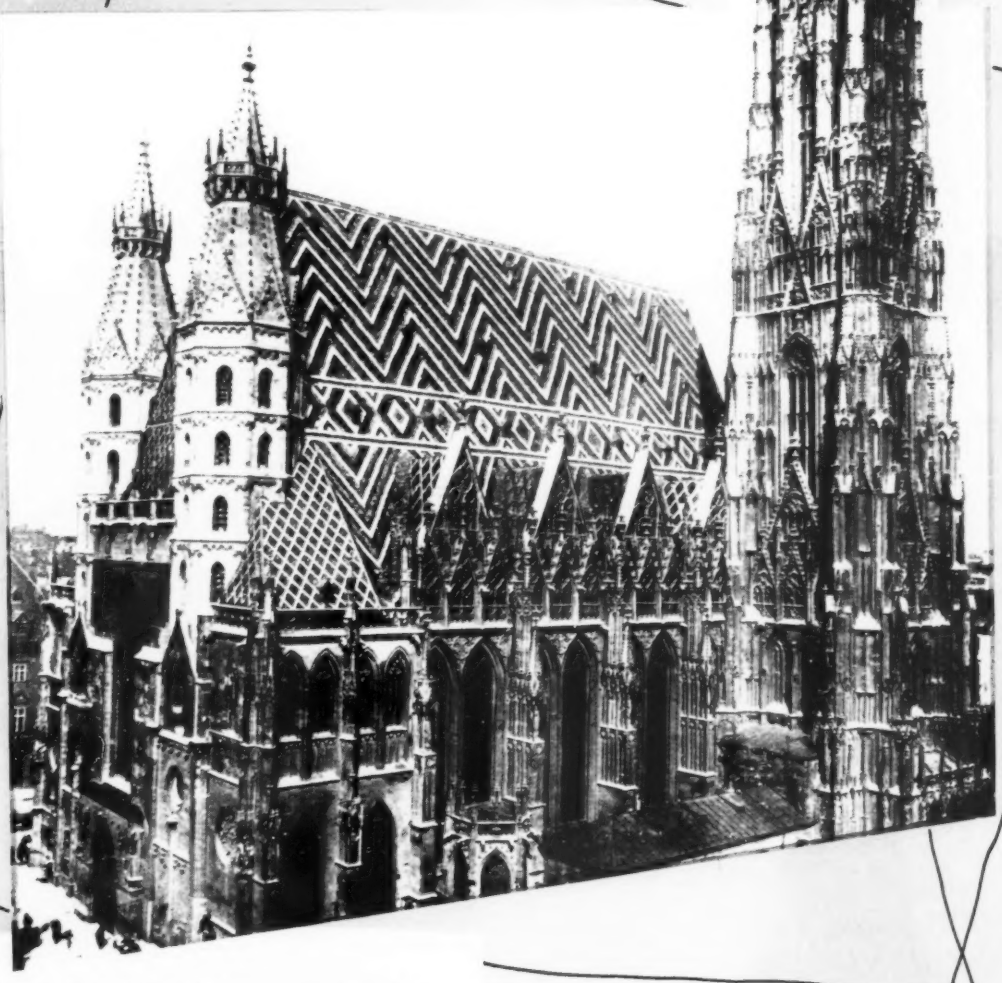
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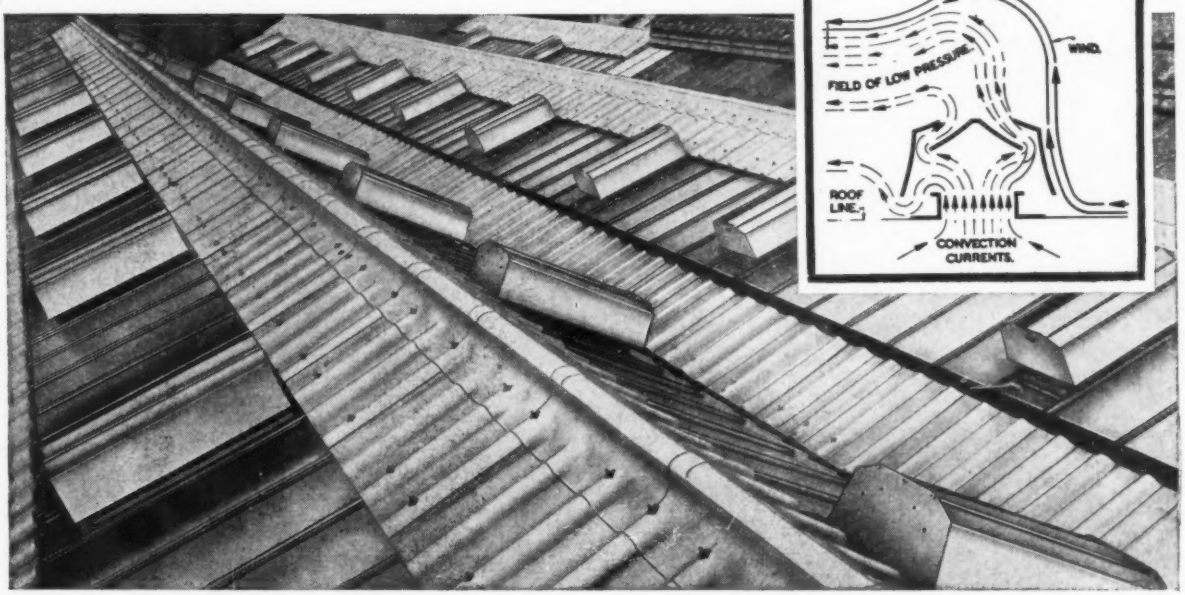
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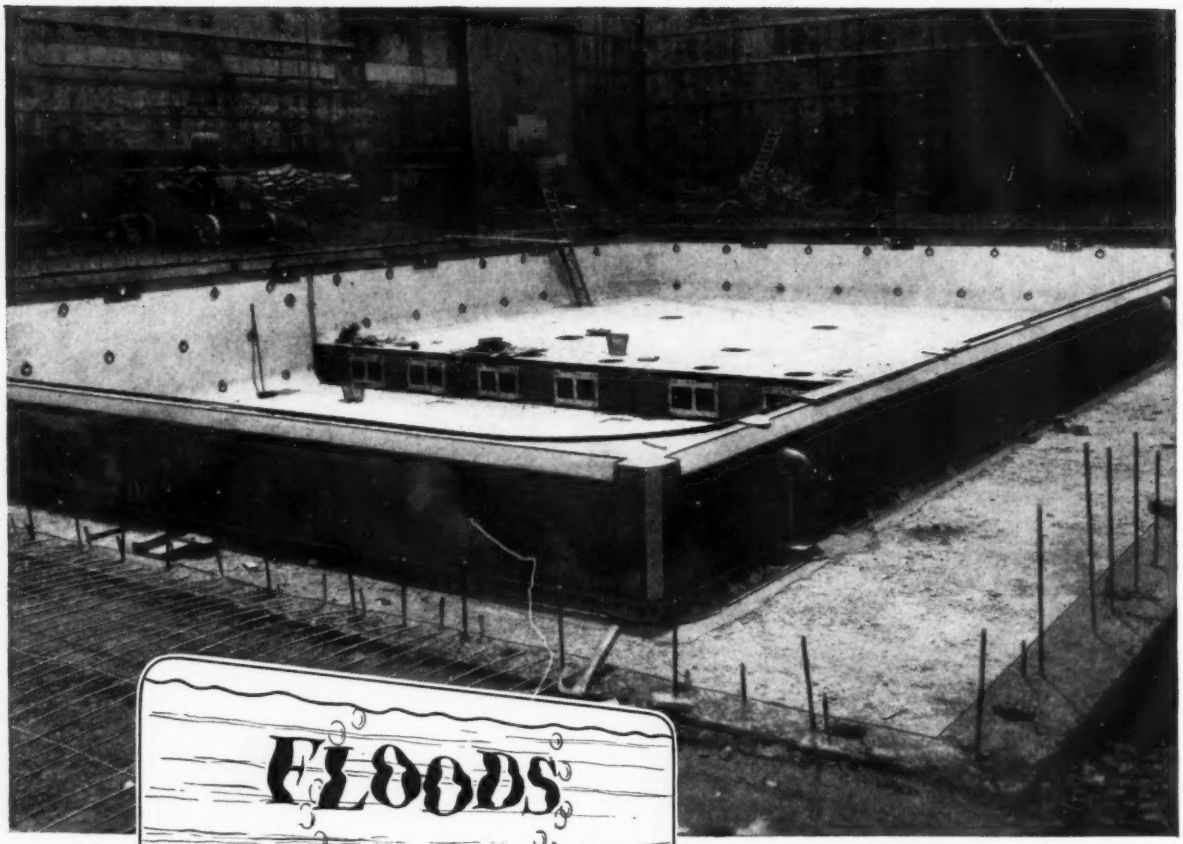
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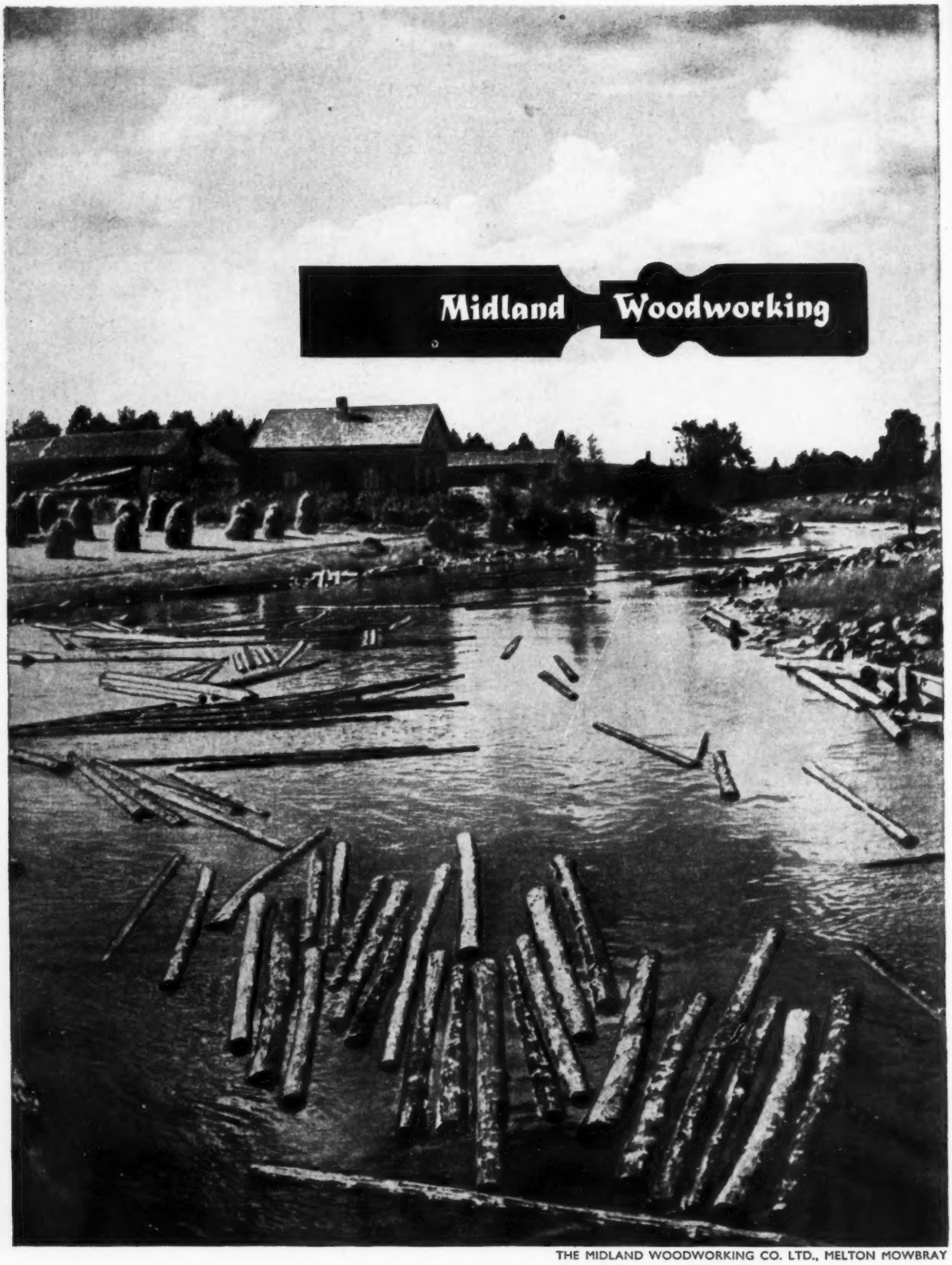
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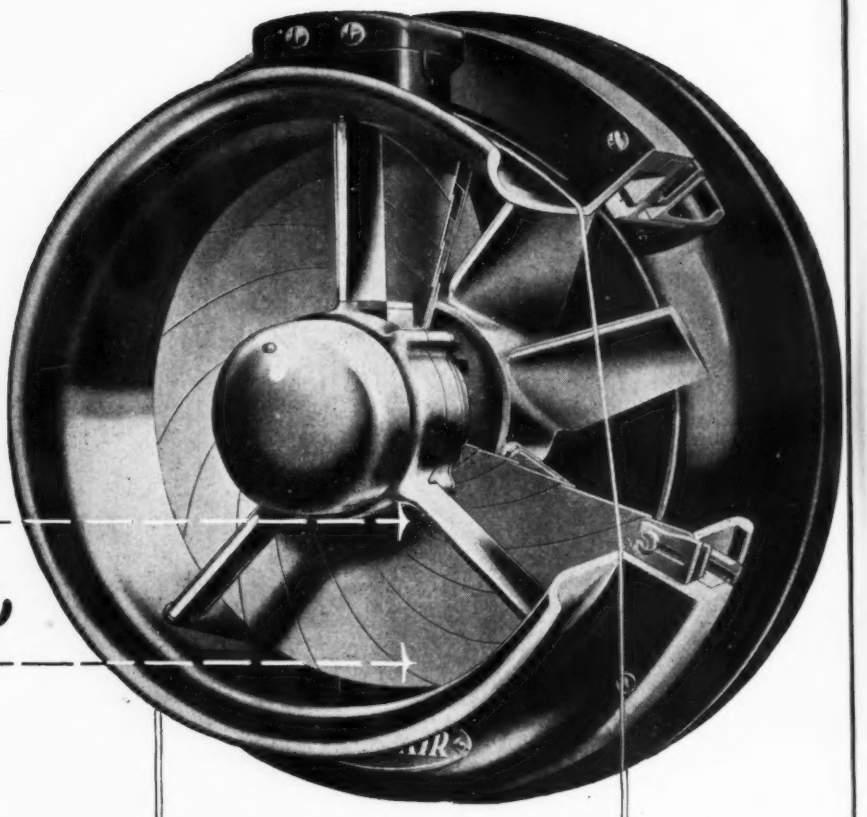
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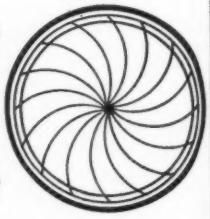
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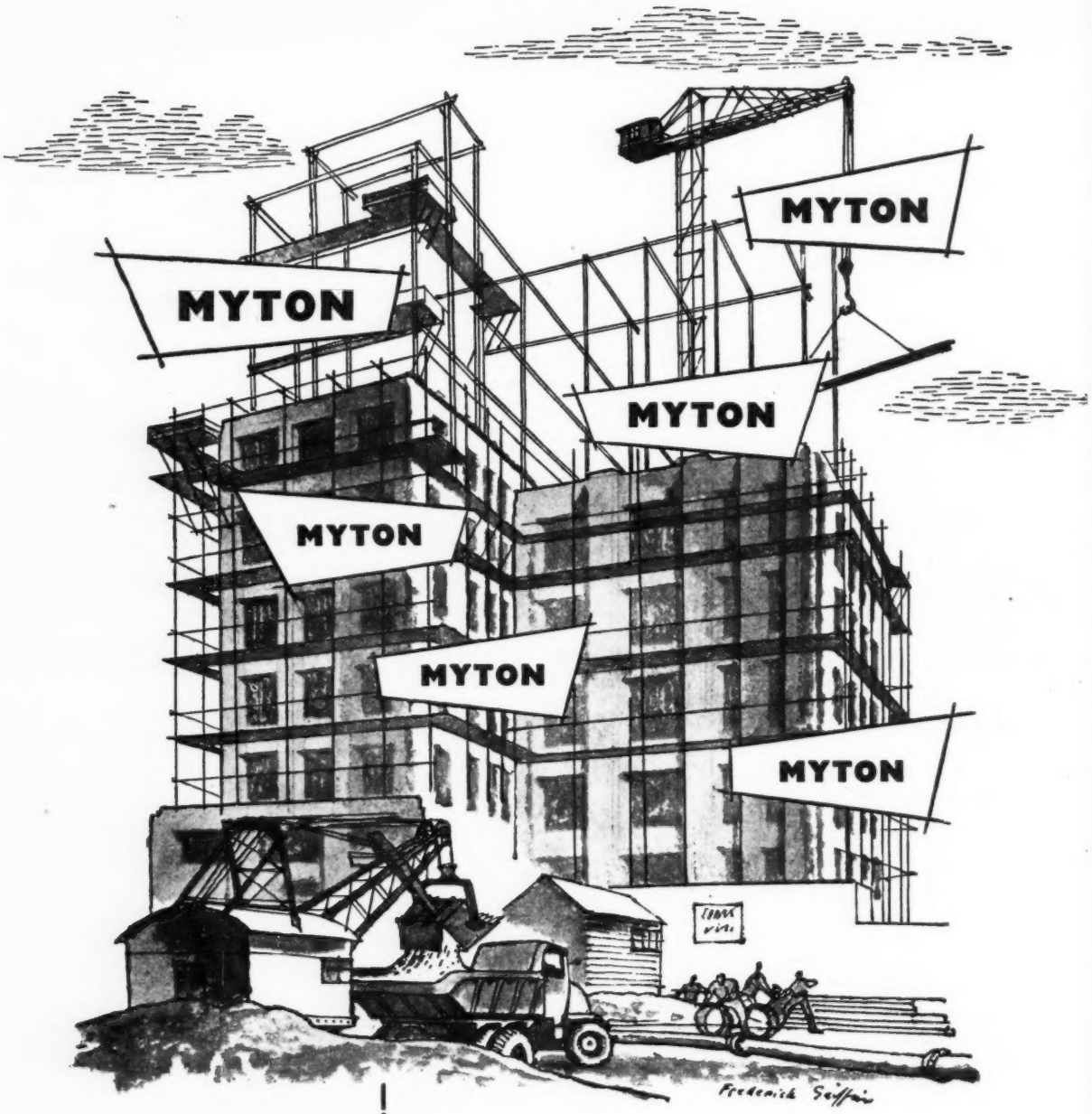
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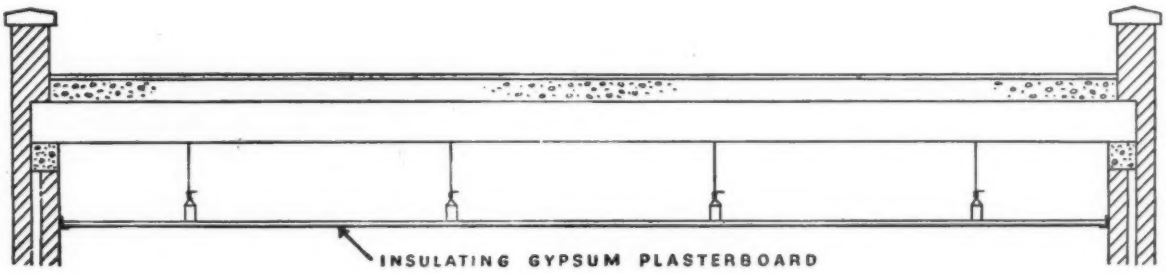
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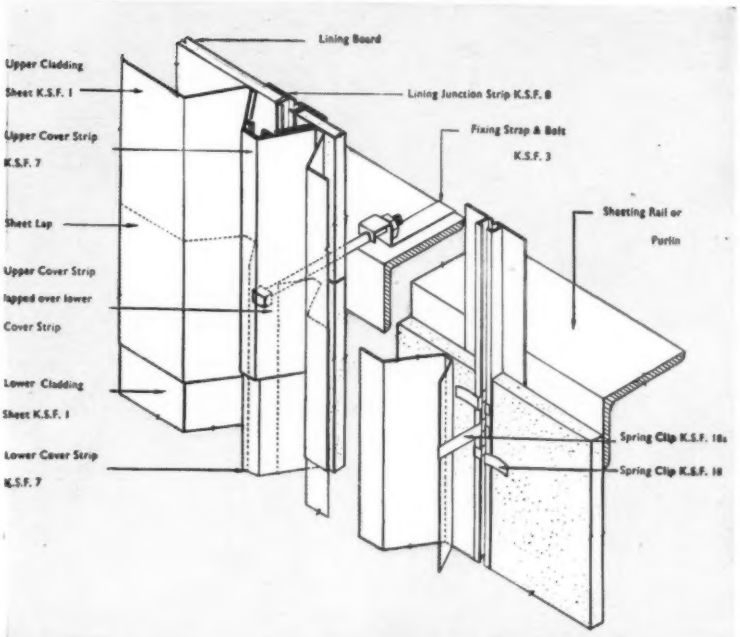
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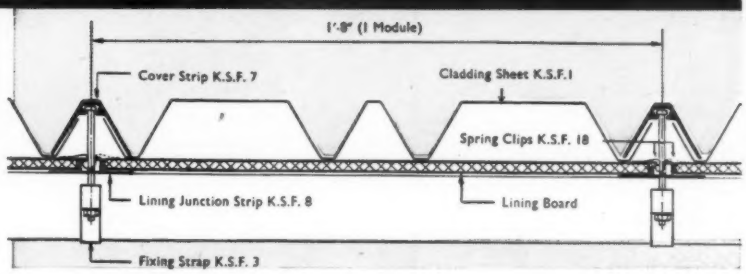
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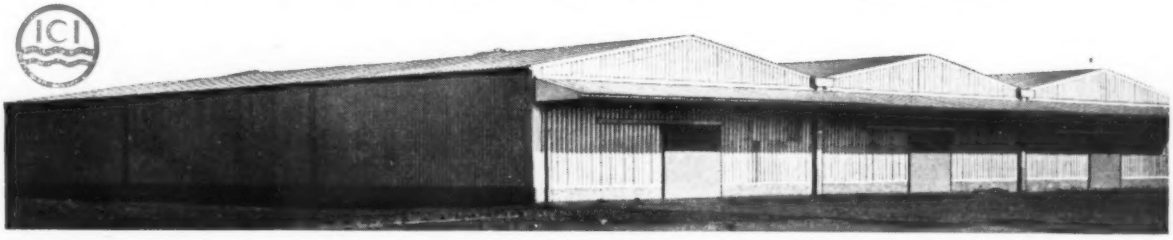
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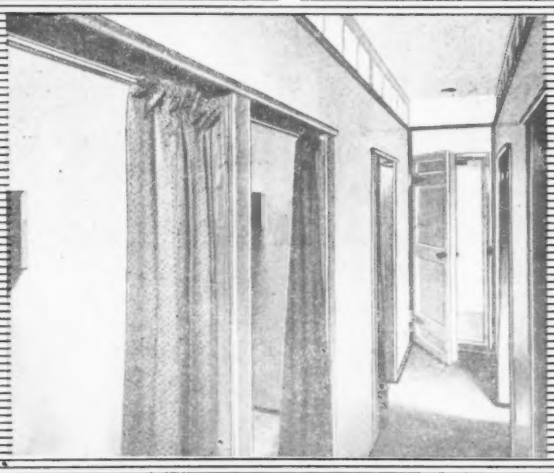
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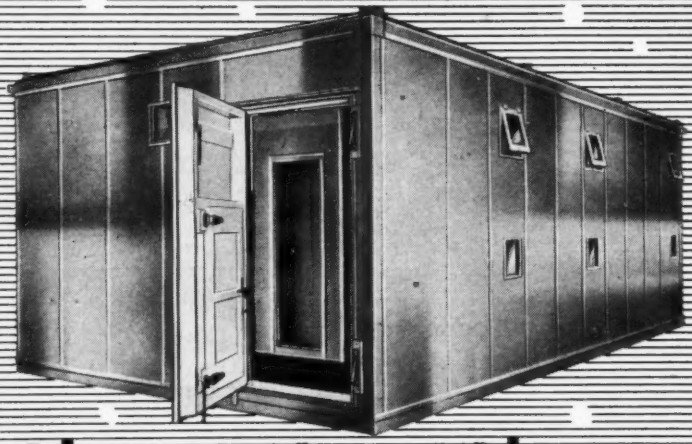


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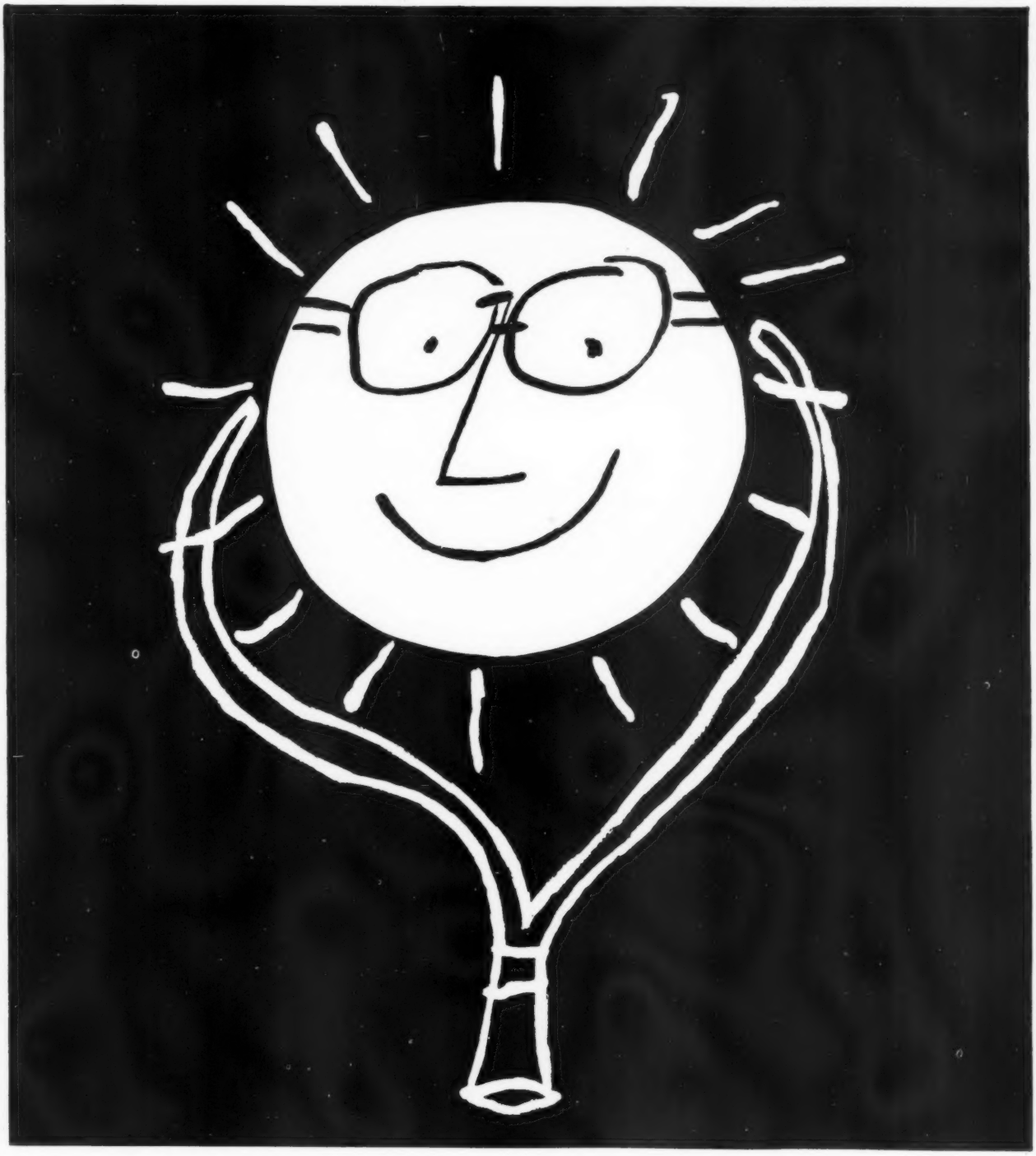
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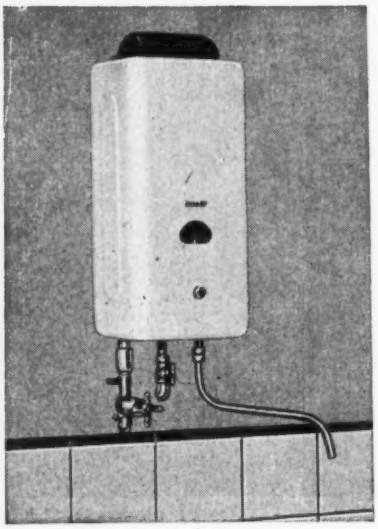
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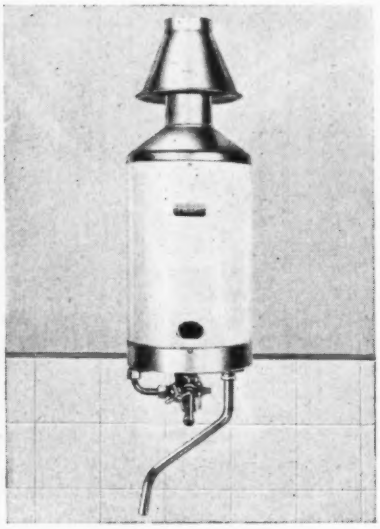
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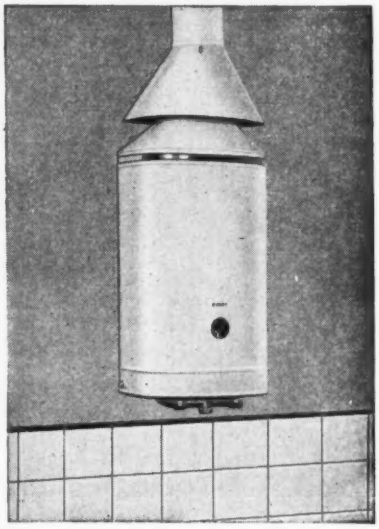
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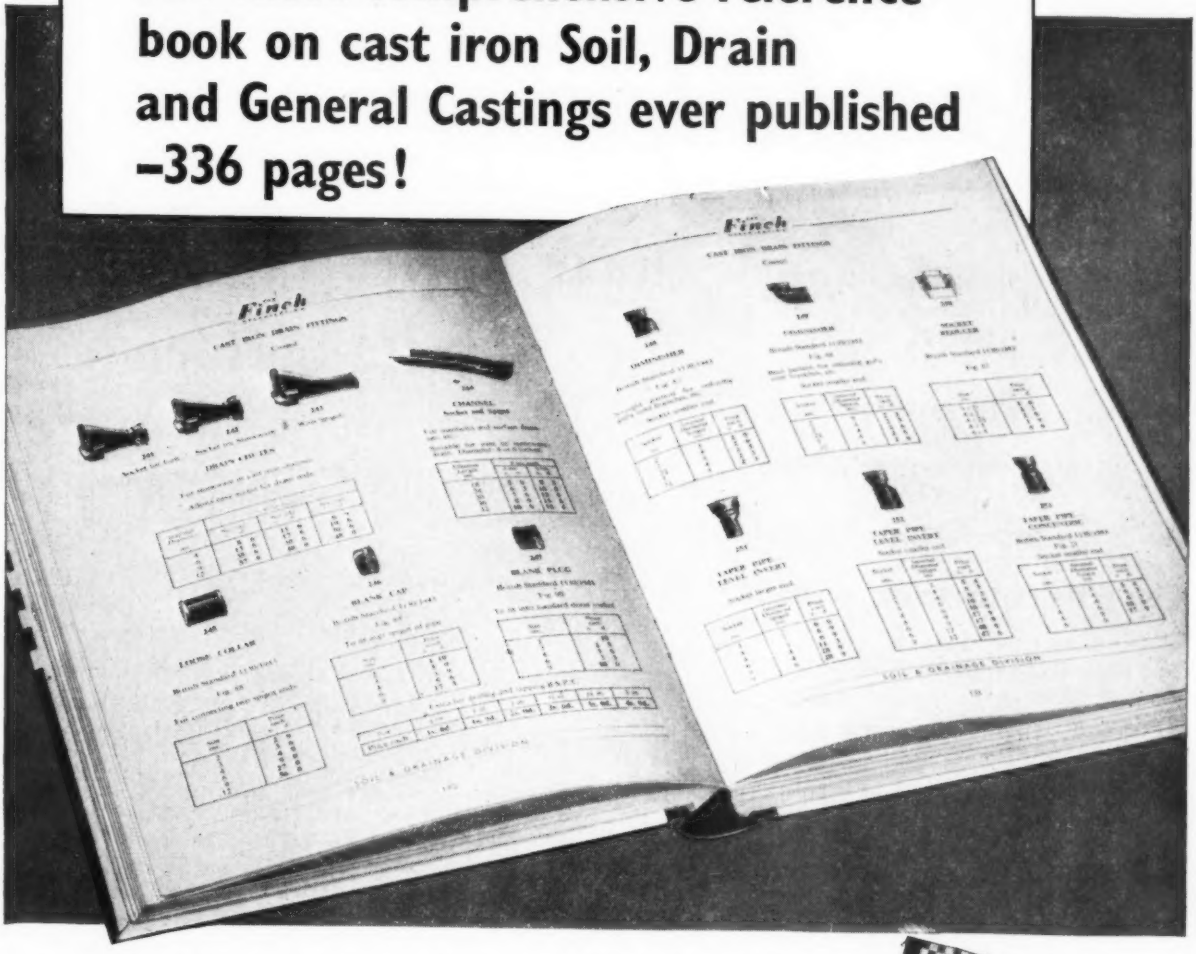


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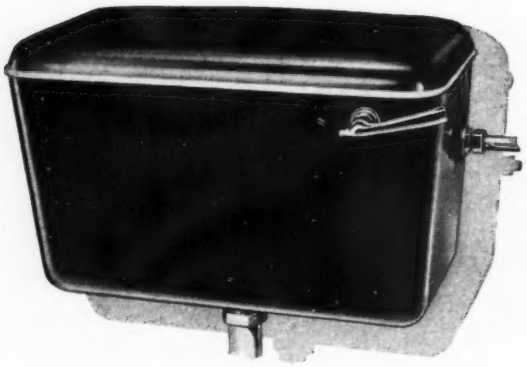
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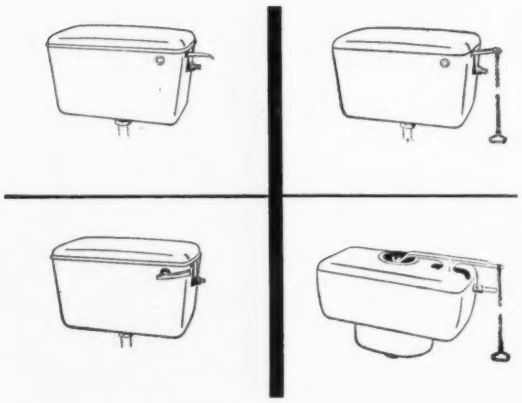
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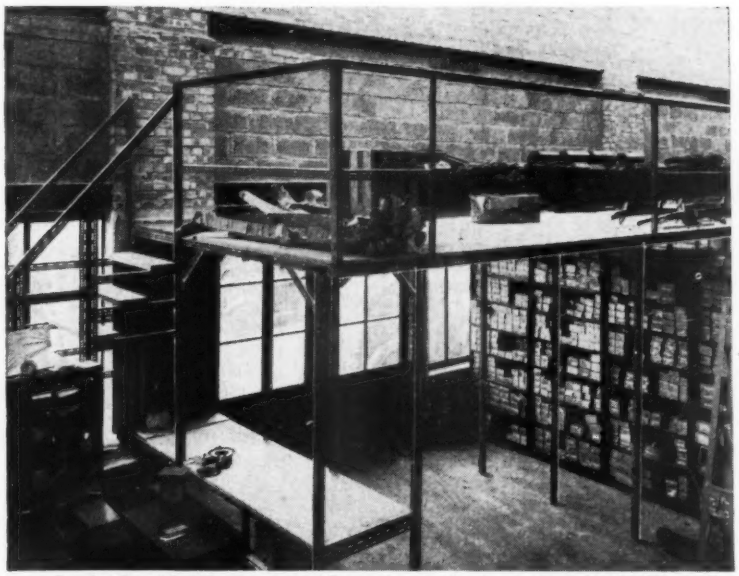
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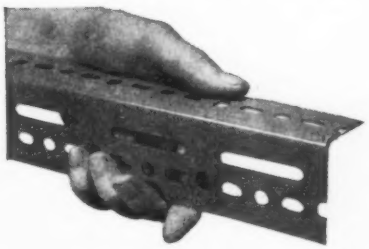
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The Cotswold Gateway Hotel at Burford, Glos.

SADIA WATER HEATERS



CUT DOWN RUNNING COSTS
GIVE VALUABLE ADDITIONAL SPACE
MAKE POSSIBLE DRAUGHT BEER TRADE

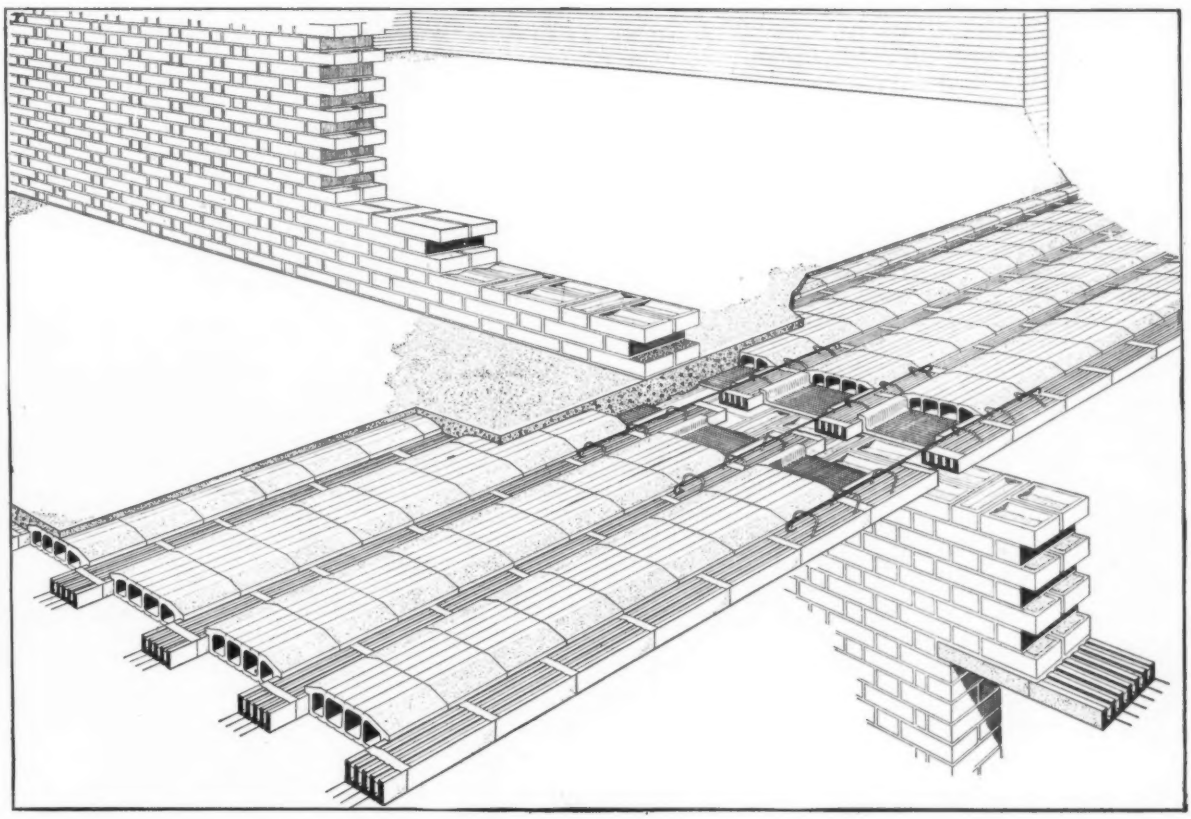
Messrs Hunt, Edmunds & Co Ltd, the Banbury brewers, are carrying out extensive modernisation of their several properties in the Cotswolds. The latest to be completed is the beautiful old Cotswold Gateway Hotel at Burford, on the main London/Cheltenham Road (A.40), owned by Wayside Inns Ltd (a subsidiary of Hunt, Edmunds & Co Ltd). The alterations were planned by Hunt, Edmunds' architectural staff, and here too as on other occasions Sadia Water Heaters of various capacity were installed. Before this, hot water was supplied by solid fuel boilers which, together with the coal, were housed in the two main cellars. These cellars are now used for stocking beer in barrels and this makes possible a profitable retail trade in draught beer. But more important is the fact that there is now *ample* and *constant* piping hot water for guests' rooms and bathrooms, for the manager's flat and for use in the bar, kitchen, pantry and everywhere else. Wayside Inns Ltd. find that this simple, dependable and cleaner SADIA way provides a substantial saving in staff and running costs.

SADIA
HOT WATER BY ELECTRICITY

SAFE · CLEAN · ECONOMICAL

Aidas Electric Ltd, Sadia Works, Rowdell Road, Northolt, Middx. Telephone: WAXlow 2355

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1. ALL THE ADVANTAGES OF HOLLOW TILE CONSTRUCTION
2. PRESTRESSING ALLOWS FOR LENGTHY SPANS
3. COMPOSITE CONSTRUCTION WITH NO UPWARD CAMBER
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Greatly increased production permits speedy deliveries

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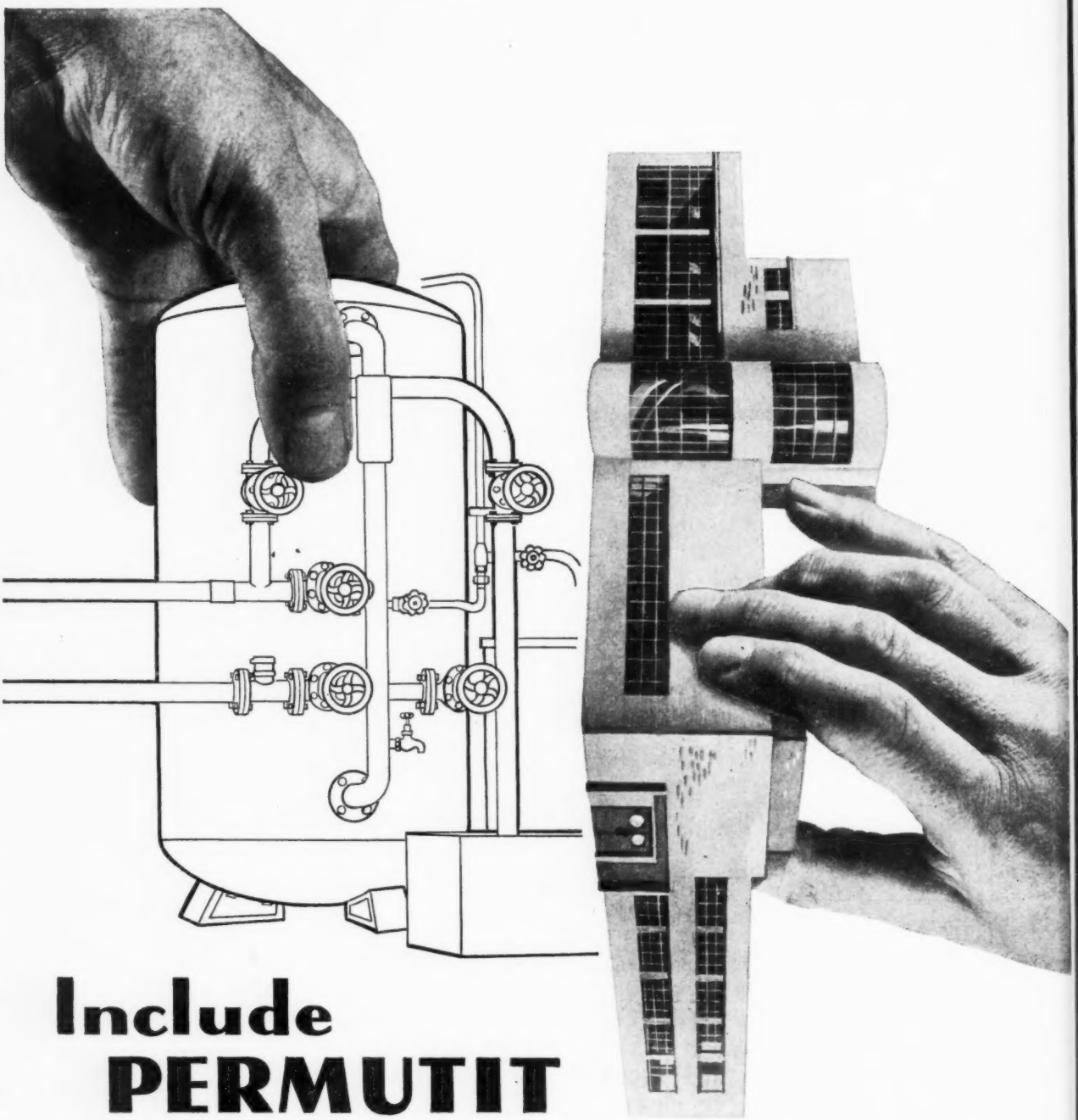
or from factories at:—

London & Southern Counties. Costain Concrete Company Limited, Stahlton Lane, Southend Arterial Road, Childerditch, Nr. Brentwood, Essex. Telephone: Herongate 317

Lancs. Yorks. & Midlands. R. Costain & Sons (Liverpool) Ltd., Barlows Lane, Liverpool 9. Telephone: Aintree 4141/5

Scotland & Northern Counties. Costain Concrete Company Ltd., Coltness Factory, Newmains, Lanarkshire. Telephone: Wishaw 880

Wales & West Country. Costain Concrete Company Ltd., Cowbridge Road, Bridgend, Glam. Telephone: Bridgend 961



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IN YOUR PLANS FOR SCHOOLS AND BLOCKS OF FLATS

Plan for economy by including a Permutit Water Softening plant in new buildings—schools, blocks of flats, canteens, self-service laundries and other municipal buildings. By preventing the formation of scale in boilers, pipes, radiators and valves, a Permutit Water Softener will effect substantial economies in fuel and maintenance. It will also save soap, soda and detergents and simplify cleaning operations and dishwashing.

For further details please write to:

THE PERMUTIT COMPANY LIMITED *(Dept. Z.X.226)*

Permutit House, Gunnersbury Avenue, London, W.4. Telephone: CHIswick 6431



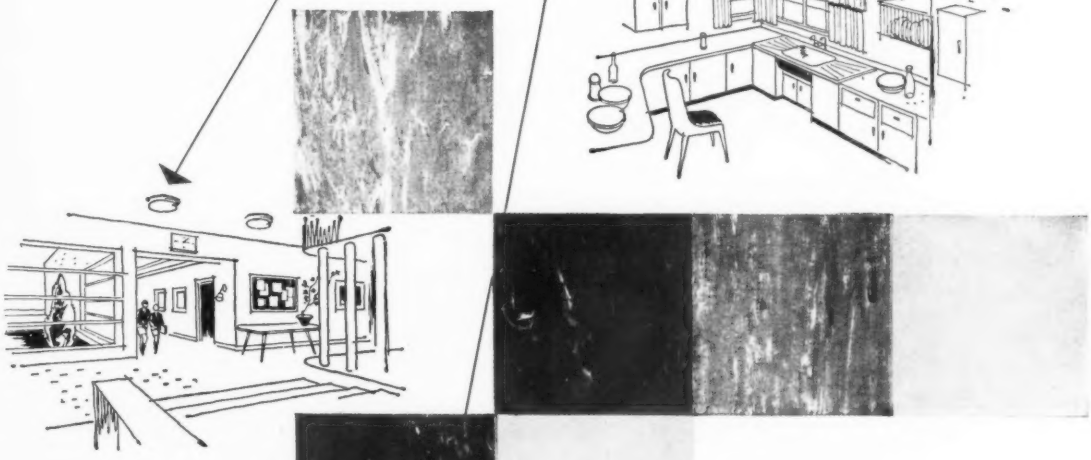
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✳ *HERE . . . THERE . . . ANYWHERE*

RUBBER answers every flooring problem



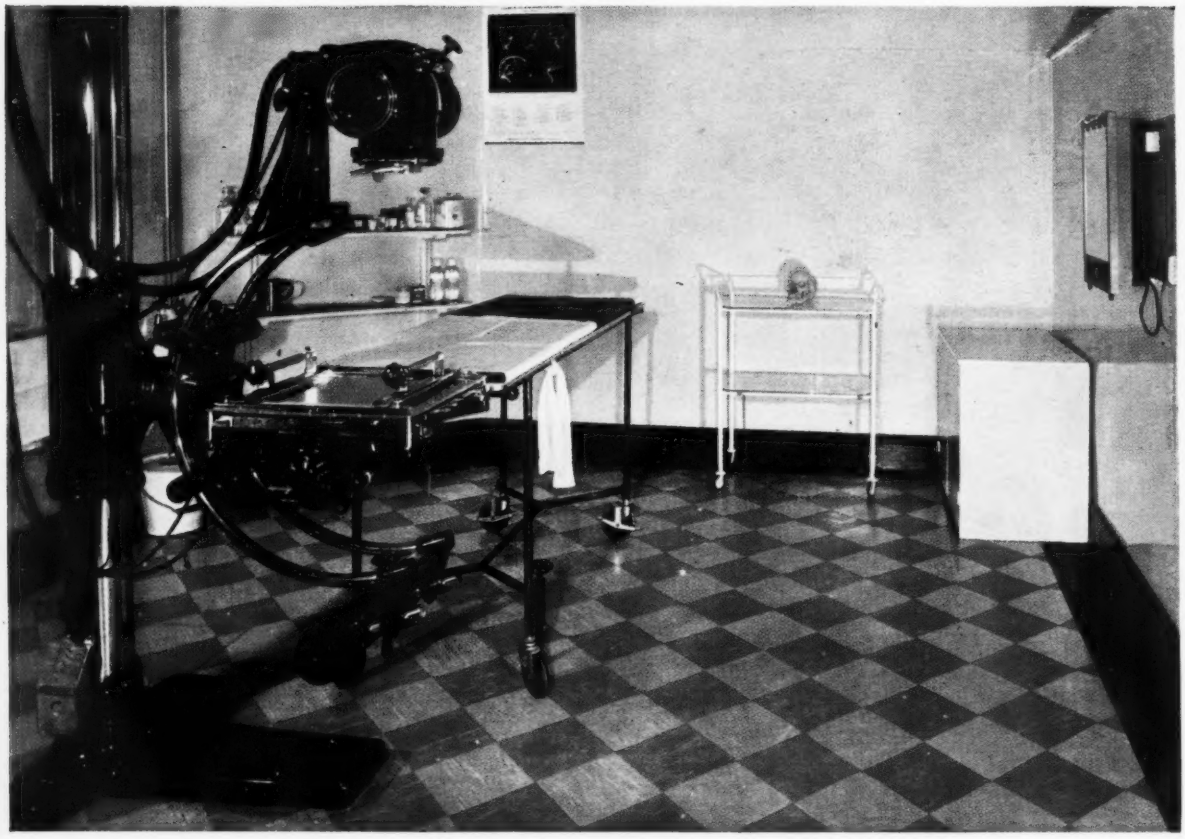
So practical in the silence it gives where quietude is important; so hygienically easy to clean—and keep clean: a safe, non-slip foothold always. That's Rubber. Incomparable in its good temper under heavy traffic . . . in the economy of its unending wear. To bring colour to any decorative scheme . . . flexibility to "within-budget" planning. That, too, is Rubber. For showroom or schoolroom, hall or home: hotel, office or hospital ward, Rubber is unequalled for faultless service. Easily installed, waterproof, non-stretching and non-buckling, Rubber is indeed the answer—the *perfect* answer when it's

RUNNYMEDE
RUBBER FLOORING

RUNNYMEDE RUBBER CO. LTD., 6 OLD BAILEY, LONDON, E.C.4

Nairn brings you floors of "Never Before" Beauty and Service-ability

NAIRN VINYL TILE FLOOR LAID IN THE X-RAY DEPARTMENT OF IPSWICH BOROUGH GENERAL HOSPITAL



Proprietors, managers and executives of business premises and institutions all over the country are specifying Nairn Vinyl Tile Floors. Housewives, too, are making enquiries at their architect's or builder's about Nairn Vinyl Tile Floors. Everywhere the news is spreading that Nairn brings you floors of 'never before' beauty and utility.

'Never Before' Wear-ability Since the floors of the 53 laboratories in the new Biology Building of Nottingham University would be subject to continual traffic and exposure to all manner of chemicals, the University laboratories themselves tested various types of floor covering. Nairn Vinyl Tiles proved to be the most satisfactory and were used exclusively.

'Never Before' Clean-ability Grease, oil, mud . . . bleach, alkalis, cooking fats . . . all the things that might ruin an ordinary floor don't affect a Nairn Vinyl Tile Floor. And all that's needed to keep it shining clean is an occasional polishing.

'Never Before' Versatility Nairn Vinyl Tile Floors can be laid on any kind of level surface, upstairs, downstairs or in the basement. As a design component the Nairn Vinyl Tile is extremely versatile too . . . AND, LAST BUT NOT LEAST THE COST IS SURPRISINGLY LOW.

For years, both here and in the U.S.A., laboratory research and stringent practical tests have *proved* the wear-resistance of Nairn Vinyl Tile Floors.



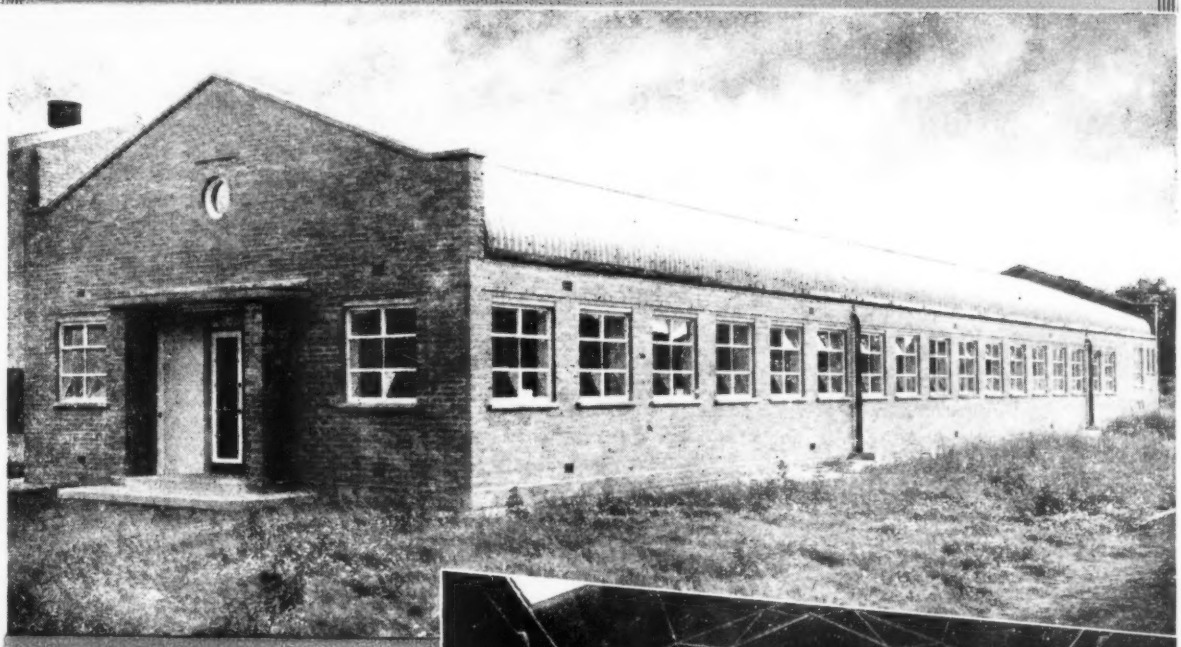
Please write to us (at Office 102) for further information, literature and advice.

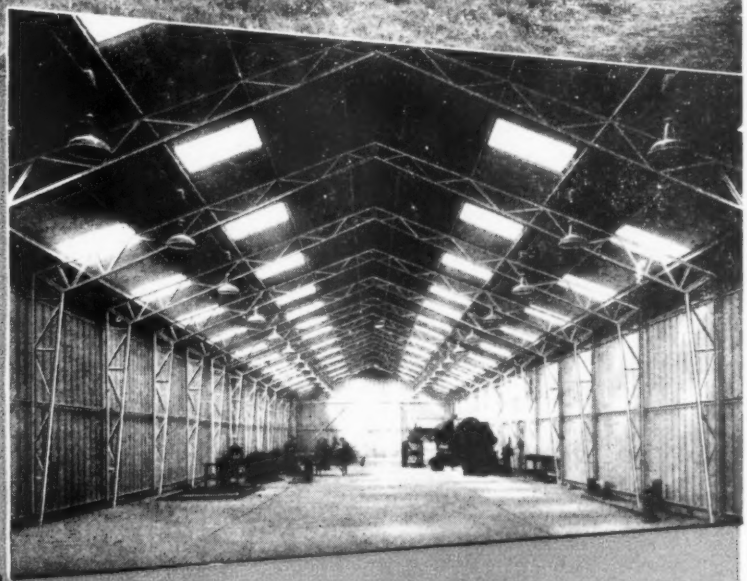
MICHAEL NAIRN & CO., LIMITED, KIRKCALDY, SCOTLAND



COSELEY

STANDARD STEEL FRAMED BUILDINGS





The adaptability of the Coseley Standard Steel Framed Building is shown in these illustrations. Standard Spans range from 30ft. to 75ft., with 8ft. to 20ft. height to eaves. Lean-to and canopy extensions can be supplied at standard roof slope. Lengths in multiples of 12ft. 6in. and widths in multiples of Standard spans.

Civil Engineering and Building can be undertaken by our associated companies, Sinton Thompson & Partners, Ltd., Wolverhampton and Collier Sinton & Partners, Ltd., London.

COSELEY

• ADAPTABLE • ECONOMICAL
• EXTENDIBLE • DURABLE

ENGINEERING CO. LTD.

LANESFIELD WOLVERHAMPTON ENGLAND • • • Telephone: BILSTON 41927/6 lines

You're wasting 600 tons of Fuel you know!

Yes, 600 tons a year! And you'll agree that it is a heavy burden for your overheads to carry.

It certainly is, but I question your estimate of 600 tons. We all know that an uninsulated structure radiates heat to the surrounding atmosphere, but how do you arrive at the amount?

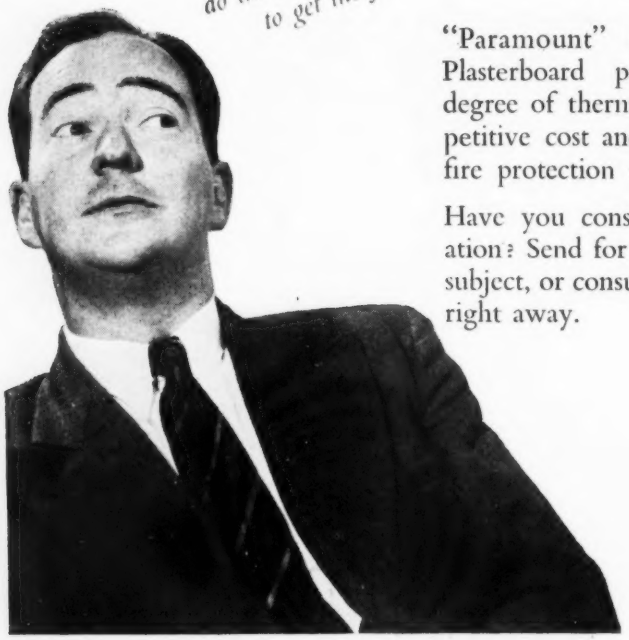
Well, if you want exact figures, I refer you to a bulletin issued by the Fuel Efficiency Committee. The figures they supply are based on a roof structure similar to this one. To quote them, 7.8 tons of fuel are burned annually to replace the heat losses through 1,000 sq. ft. of structure.

I see, so that with 100,000 sq. ft. we are using 780 tons.

Exactly! Now this is where you can save fuel. They found that after erecting a suspended ceiling of Insulating Gypsum Plaster Board, only 1.8 tons of fuel were required. This represented a saving of 6 tons; in your case it would be 600 tons.

Good enough! I leave it to you to write out how best to do the work so that we can get an estimate. And I should like to get the job done before winter sets in.





"Paramount" Insulating Gypsum Plasterboard provides the highest degree of thermal insulation at competitive cost and you get maximum fire protection as a welcome bonus.

Have you considered thermal insulation? Send for our brochure on this subject, or consult our Technical Staff right away.

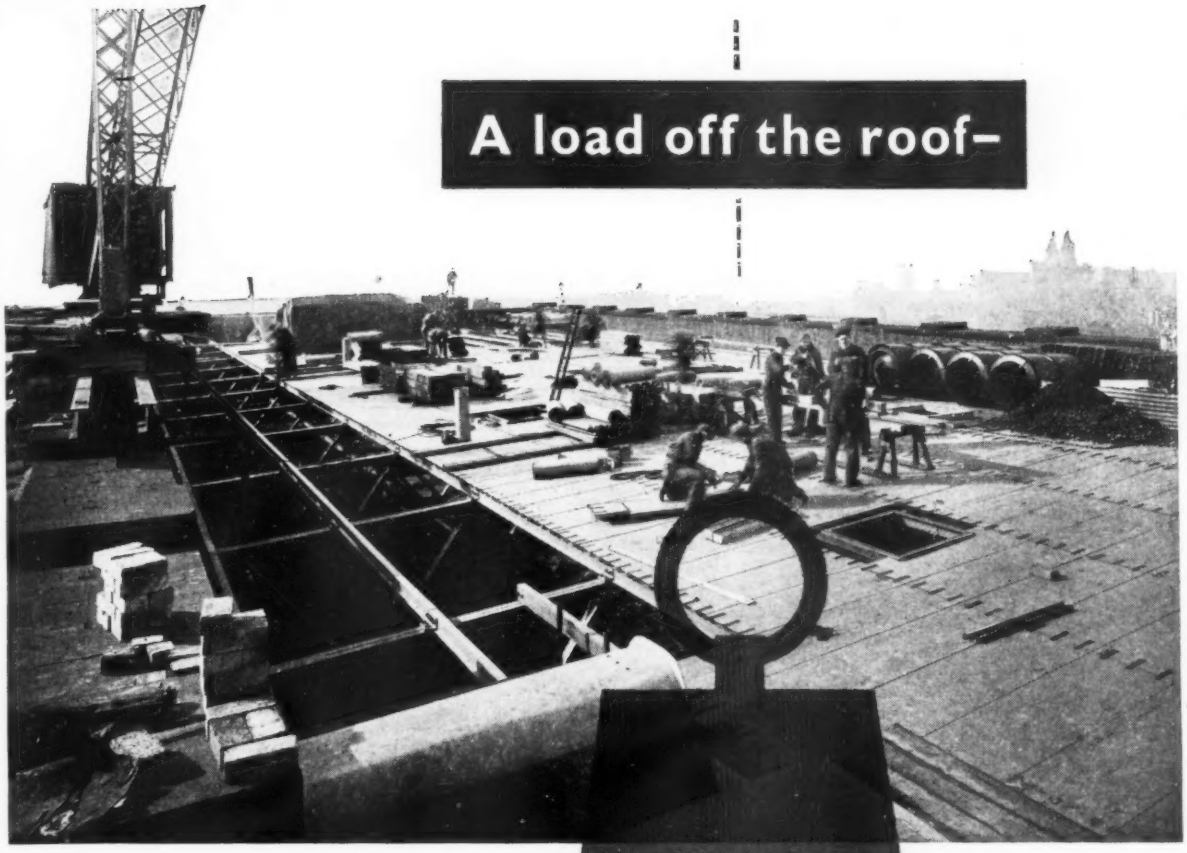
THE BRITISH PLASTER BOARD (MANUFACTURING) LIMITED

BATH HOUSE, 82 PICCADILLY, LONDON, W.1

Telephone: GROsvenor 8311

AP244-208

A load off the roof–



A weight off your mind

Ruberoid Steel Roof Deck, when insulated and weatherproofed, weighs only 4½ lb. per square foot. Yet it has the necessary strength and rigidity to support high superimposed loading over wide spans on flat, pitched or curved roofs. Because of the saving in dead load and the use of a flatter pitch, fewer and smaller structural members are necessary.

Erecting roofing of this kind requires specialised experience, and The Ruberoid Company Ltd. therefore undertakes the complete job. But to ensure that the specification will be exactly right, consult Ruberoid at the design stage.

For low-cost permanent roofing, giving complete satisfaction for decade after decade, specify Ruberoid materials and workmanship.

Special Features of The Ruberoid Roof

- Built-up roofing undertaken on buildings of any shape or size—anywhere in Britain.
- Specifications include roof decks of steel, aluminium and asbestos cement, all these being insulated externally and weatherproofed with Ruberoid Roofing.
- Representatives and Branches throughout the country will give immediate attention to plans and estimates.
- Comprehensive service includes consultation, inspection and maintenance. Call in Ruberoid at an early stage.

RUBEROID

THE BEST POSSIBLE MATERIALS LAID IN THE BEST POSSIBLE WAY

TRADE MARK RUBEROID REGISTERED

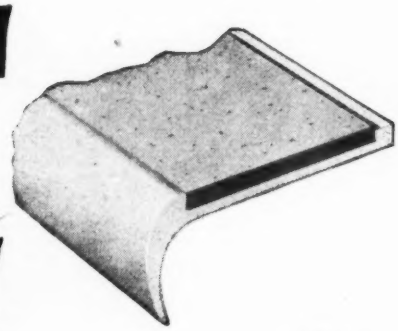
THE RUBEROID COMPANY LIMITED 343, Commonwealth House 1-19 New Oxford St. · London · W.C.1

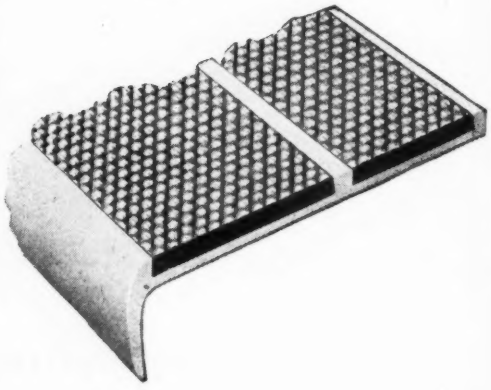
TGA C18

You asked for these . . .

New, first-time-ever

STAIRTREAD
NOSING
COLOURS





MANGANESE BRONZE, SILVER BRONZE

Here *is* news! In addition to their famous aluminium nosing, Ferodo Limited can now supply Stairtreads in two new, attractive metals—silver bronze and manganese bronze. Both are available in a wide range of sections, and, of course, with any of the seven Ferodo moulded tread colours, plus brown fabric! Whatever the mood of your interior design there *must* be a Ferodo Stairtread that will blend in with the colour scheme.

Only Ferodo Stairtreads give you all these advantages

RANGE

THREE nosing metals, aluminium, silver bronze, manganese bronze.

SEVEN colours: red, white, blue, green, black, brown and grey. Plus brown fabric, steel-backed for industrial uses.

SECTIONS: Ferodo Stairtreads are available in sections shaped to fit any stairs, and all have 'concealed-fitting' to hide fixing screws.

SERVICE

- Ferodo Stairtreads give a sure grip in all weathers.
- Ferodo Stairtreads are tough, long lasting and weather resistant. They retain their colour permanently.
- Ferodo Stairtreads are easy to clean. A quick wipe down soon restores their handsome looks!

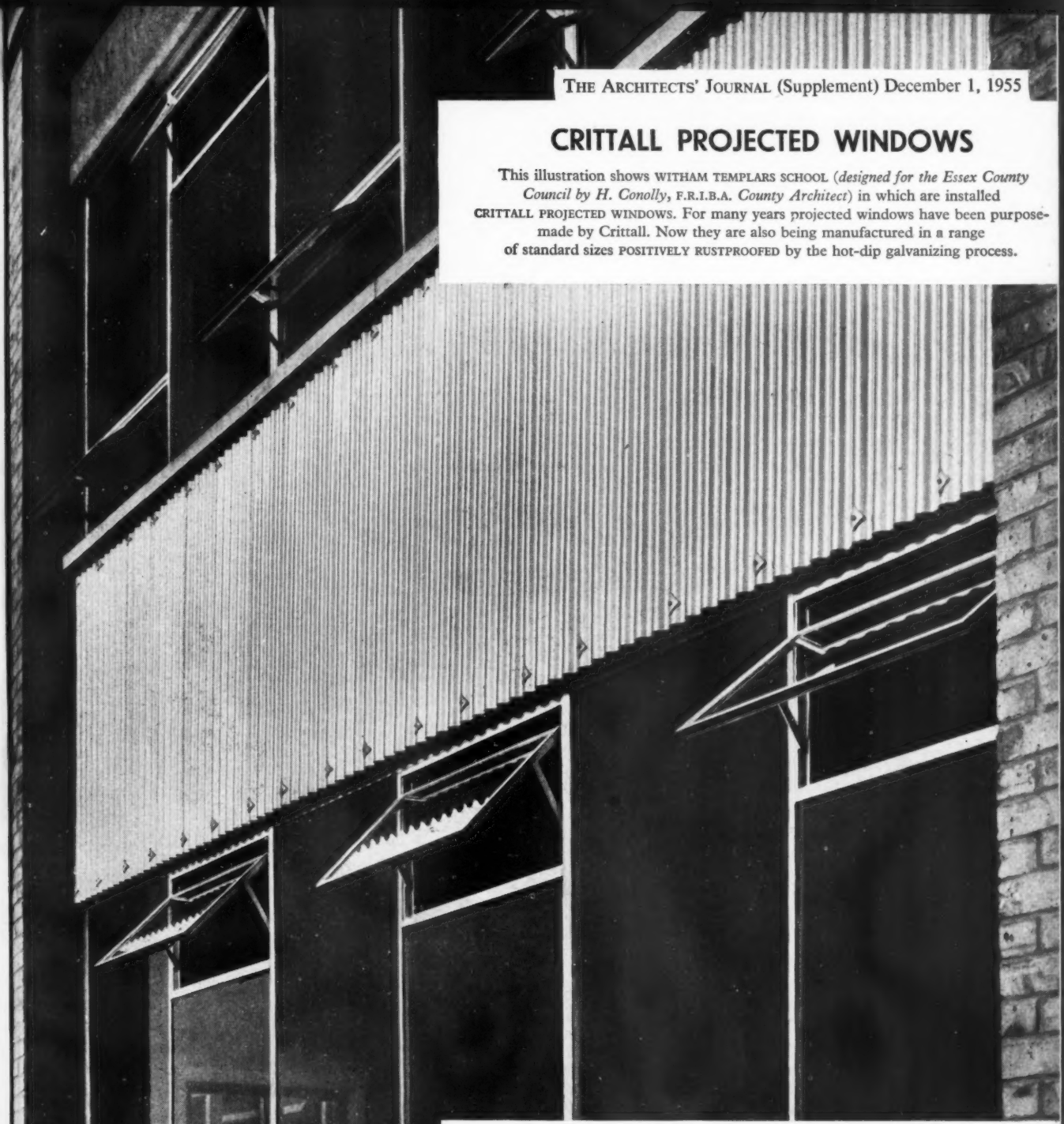
* Choose Ferodo First when you're ordering stairtreads

FERODO stairtreads

FERODO LIMITED · CHAPEL-EN-LE-FRITH *A Member of the Turner & Newall Organisation*

CRITTALL PROJECTED WINDOWS

This illustration shows WITHAM TEMPLARS SCHOOL (*designed for the Essex County Council by H. Conolly*, F.R.I.B.A. *County Architect*) in which are installed CRITTALL PROJECTED WINDOWS. For many years projected windows have been purpose-made by Crittall. Now they are also being manufactured in a range of standard sizes POSITIVELY RUSTPROOFED by the hot-dip galvanizing process.



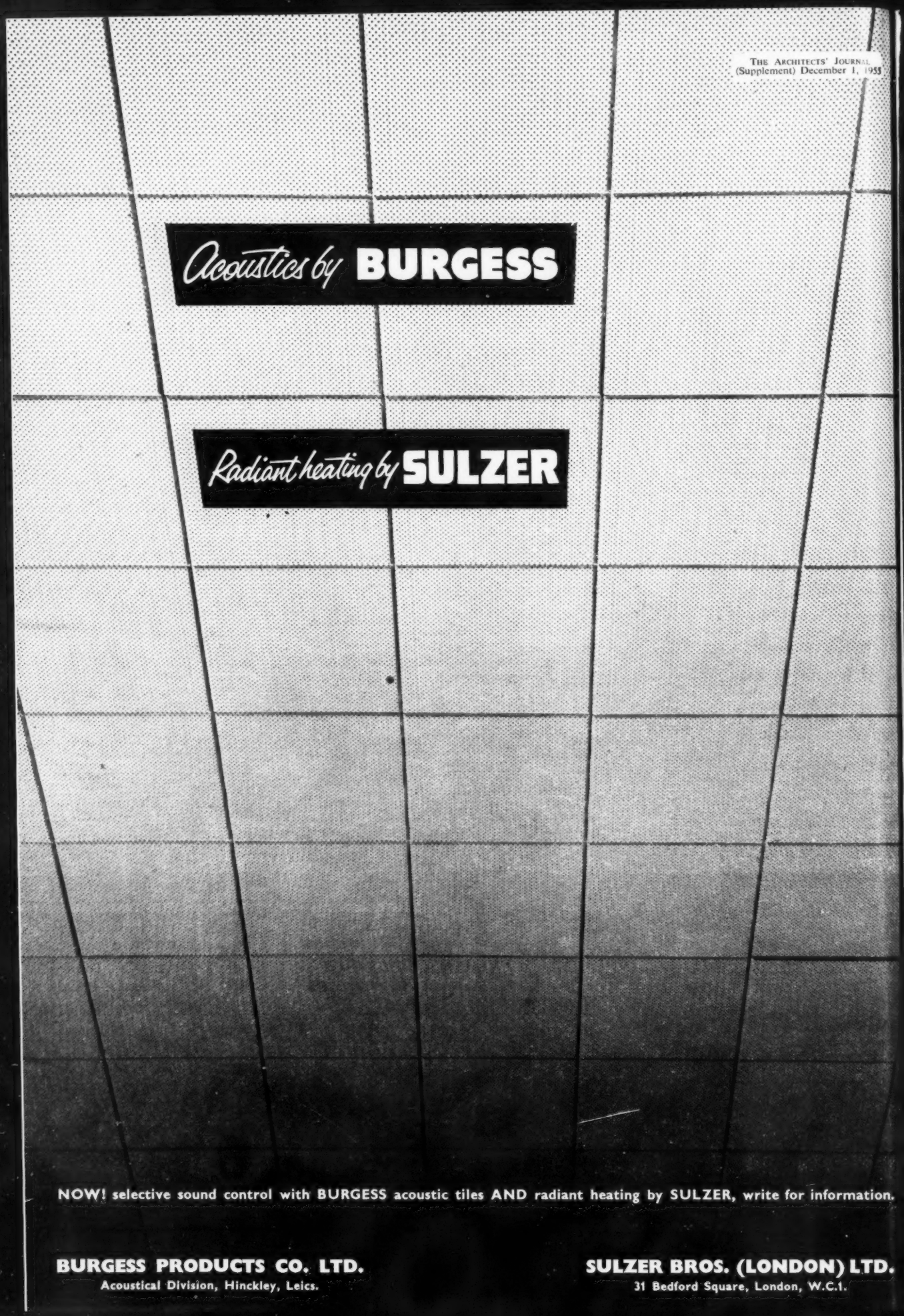
If you should ever visit the Crittall factory at Braintree (and you would be very welcome) you would observe many products which have never featured in a Crittall catalogue—and some that never will. For Crittalls look upon it as an important part of their work in windows to be experimenting with the new and improving the old. The Crittall projected windows are a case in point. Before reaching the stage of development shown in the recently published leaflet 172, you may be sure that they have passed every critical test of quality and performance as a product worthy of the Crittall organisation.

CRITTALL

THE CRITTALL MANUFACTURING CO. LTD · BRAINTREE · ESSEX

Branches and Depots throughout the country ⋈ *Members of the Metal Window Association*

rnw61



NOW! selective sound control with BURGESS acoustic tiles AND radiant heating by SULZER, write for information.

BURGESS PRODUCTS CO. LTD.
Acoustical Division, Hinckley, Leics.

SULZER BROS. (LONDON) LTD.
31 Bedford Square, London, W.C.1.

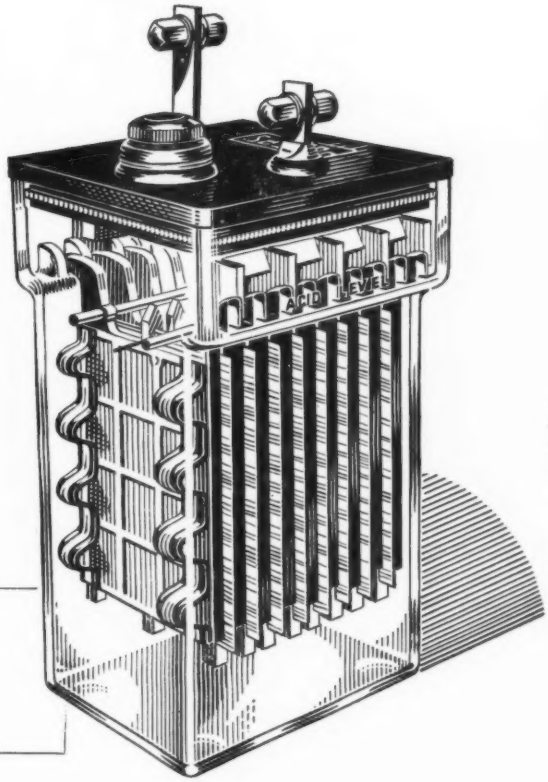


Emergency Lighting

– a system with a SERVICE

The P. & G. service includes technical advice, either as a detailed specification or as a second opinion on any projected scheme, complete equipment, and regular inspection and reports.
P. & G. also supply self-contained battery and charger cubicles for fire alarms, telephones and electric clocks.

P. & G. Emergency Lighting Equipment is automatic and instantaneous in operation; it is backed by the longest experience in battery manufacture culminating in the closed-top design of cell which has all the advantages of a sealed cell—yet a lid which can be removed with the minimum of trouble: it is the ideal battery cell for Emergency Lighting in Hospitals, Cinemas, Theatres, Public Buildings, Concert Halls, Schools, Factories, Offices, Hotels, etc.



The P. & G. Closed Top Cell
has a lid of moulded Dagenite composition with a rubber joint ring, and rubber gaskets between the terminal pillars and lid, to render the lid acid-tight

ENQUIRIES TO

Pritchett & Gold and E.P.S. Co. Ltd

(BATTERY MAKERS SINCE 1882)

137 VICTORIA STREET : LONDON : SW1

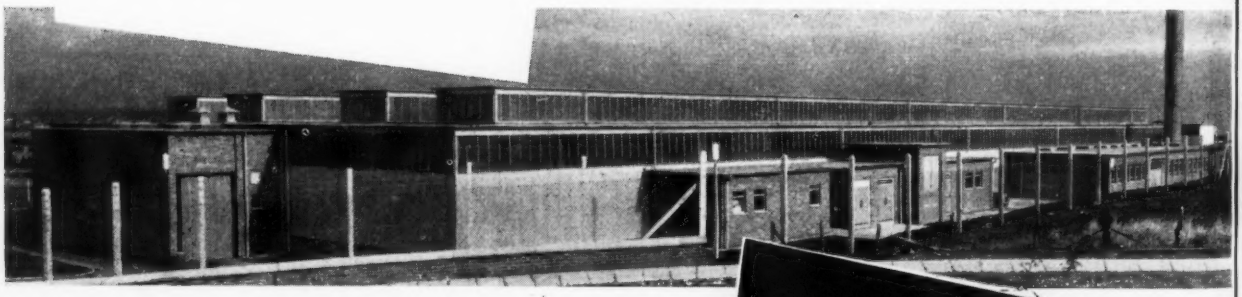
PG.26



To Protect Structural Steelwork . . .

Photograph by courtesy of the Architects. British Paints Limited Materials were used throughout on the new premises of Jeremiah Ambler Ltd., at Peterlee including "Superlative" Metal Primer for structural steelwork. Architects: Wm. Holford & Partners. Contractors: Bovis, Limited.

TECHNISERVICE: British Paints Limited Technical Division is well qualified to provide information on all questions of surface protection. Please let us know if we can be of help.



Lead Cyanamide has proved, in exacting tests over a period of years, to be a particularly efficient rust inhibitor. "Superlative" Metal Primer contains Lead Cyanamide and makes a startling contribution towards reducing the cost of steel protection. Whilst its protective properties are equal to those of Genuine Red Lead its spreading rate is substantially greater, giving approximately 100 square yards per Imperial Gallon, under ideal conditions. Application is speedier; the initial price is lower. Thus a given area can be treated with "Superlative" Metal Primer with less material; the labour cost for its application will be reduced. Full details gladly supplied.

"Superlative" METAL PRIMER

NOTE: Specify BPL Zinc Chromate Primer for Aluminium or Non-Ferrous Metals.

BRITISH PAINTS LIMITED

Portland Road, Newcastle upon Tyne, 2.
Telephone: 25151

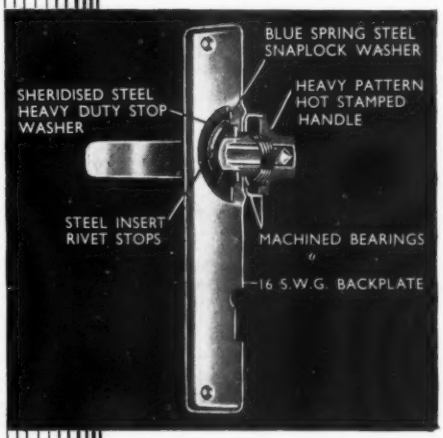
CREWE HOUSE, CURZON STREET, LONDON, W.1. TEL: GROSVENOR 6401



A Name to THIS HANDLE!

The SNAPLOCK Reversible Lever Handle

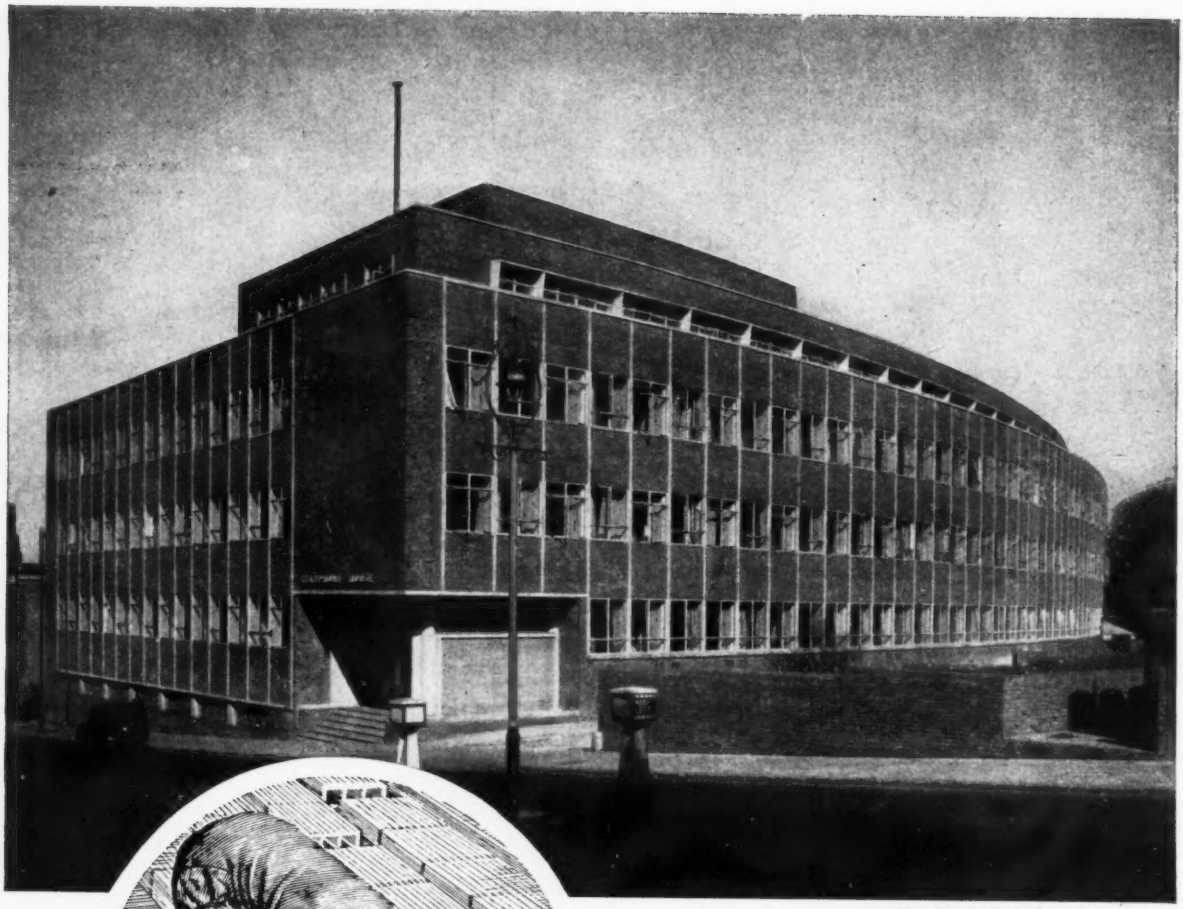
Here is a new lever lock set that is proving a big seller, for in design and construction it incorporates many special features. The set can be taken to pieces for cleaning and examination and can be easily reassembled, whilst reversing the handle for right or left hand use is only a matter of seconds. Made from the very best materials, all parts are standardised and machined to gauged limits to ensure perfect movement. The sets are produced in two sizes — for mortice 6 in. × 1¾ in. and for latch 3 in. × 1¾ in. Both are offered in a complete range of finishes on brass, gunmetal and aluminium bases.

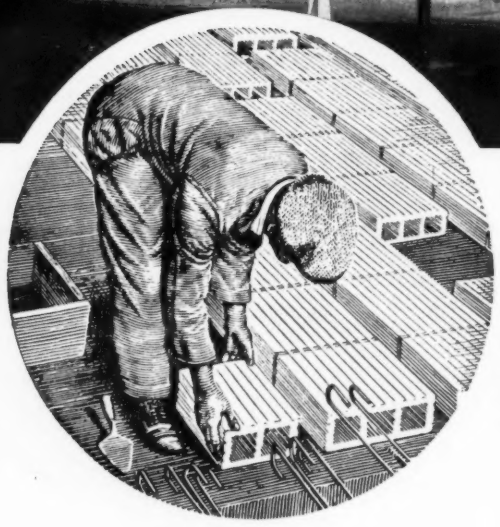


LILLY

B. LILLY & SONS LTD · BALTIMORE RD · BIRMINGHAM 22B

Telephone: GREAT BARR 1761/2





Office for the Telephone Manager, North Area, London Telecommunications Region, Crouch End Hill.
Architect: N. W. Holder, B.Arch. F.R.I.B.A.
General Contractors: Geo. Wimpey & Co. Ltd.

Bradford's were appointed by the Ministry of Works as contractors for the flooring of this building. Their hollow-block system was used throughout.

Specialities:

HOLLOW-BLOCK FLOORS
CAST STONE
GRANOLITHIC PAVING
STAIRCASES
PRE-CAST CONCRETE FLOORS
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MCN3451



The new modern store of Messrs. David Greig of Canterbury lit with Philips internal reflector lamps. Installation planned in collaboration with the Architects, Messrs. Robin Paine & Partners, Canterbury.

for ways and means to imaginative lighting —TALK TO PHILIPS: it costs you nothing

MANY of the more imaginative lighting schemes of recent years have been the result of close co-operation between architects, electrical contractors and the Philips Lighting Design Service.

The advice and assistance provided by this Philips Service is entirely free, and the experienced lighting engineers in each Philips branch area can call on the accumulated knowledge of the Century House staff, which includes a fully qualified architect who has made a special study of lighting in its relation to architecture and colour.

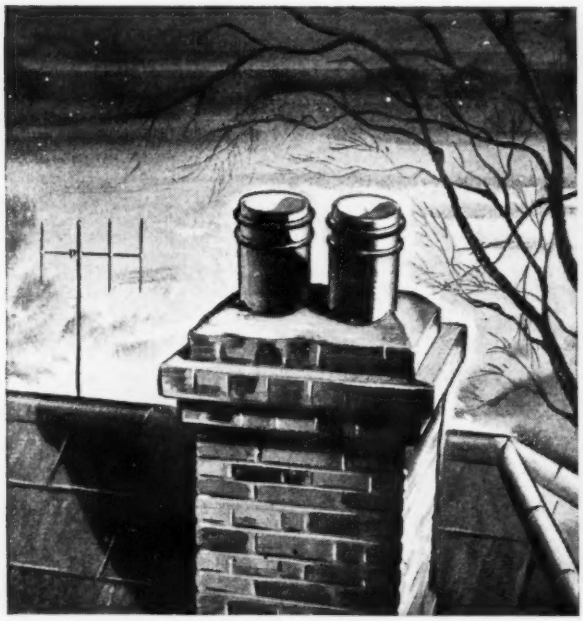
Philips will be happy to design for you—*there is no charge.*

PHILIPS ELECTRICAL LTD.

Lighting Div., Century House, Shaftesbury Ave., London, WC2 (GER 7777)

TUNGSTEN, FLUORESCENT, BLENDED AND DISCHARGE LAMPS · LIGHTING EQUIPMENT · RADIO & TELEVISION RECEIVERS · "PHOTOFLUX" FLASHBULBS · ETC. (725G)

Smoke Abatement





*CLEAN AIR?
by all means—and
GLOWING WARMTH TOO!

THE CLEAN AIR BILL is likely to become law this Autumn. But this legislation is, in fact, only a national endorsement of the smoke abatement plans of enlightened public authorities all over the country.

Our cities *have* to be made more livable-in during the winter months. At the same time, the British people must have their traditional open fires with their welcoming glow and friendly warmth.

More and more people have discovered that Flavel smokeless fuel fires are the solution to both these problems and many thousands of Flavel grates have been specified for new public development schemes.

The Ministry of Fuel & Power long ago gave official approval to Flavel smokeless fuel fires which provide constant warmth (controllable over a wide temperature range) and burn for hours on end without being touched, yet, with all these advantages, they are so cleverly designed that they actually *save* precious fuel. Heat is delivered at near-floor level so that the whole room is warmed and practically no heat is wasted.

* * *

TWO MODELS

The two models available at once for quantity delivery are the 'Newbold' and 'Flavel Seymour'. Both are modestly priced and available in a range of varied and gleaming colours. They are styled to harmonise either with contemporary interior decoration or with more conventional schemes. Heavy-duty fire bars are a Flavel feature ensuring long service and the long-burning attachment of the 'Flavel Seymour' can be dropped to form a convenient shelf and to expose the lower part of the fire. Both models can be supplied with gas ignition if required. Insulation in the well of these grates is obtained by an air pocket thereby avoiding the use of fire bricks which, in replacement, can prove very costly.

The 'NEWBOLD' and 'Flavel SEYMOUR' burn best on smokeless fuel but they can use any solid fuel.

* * *

SMOKELESS SINCE 1920's

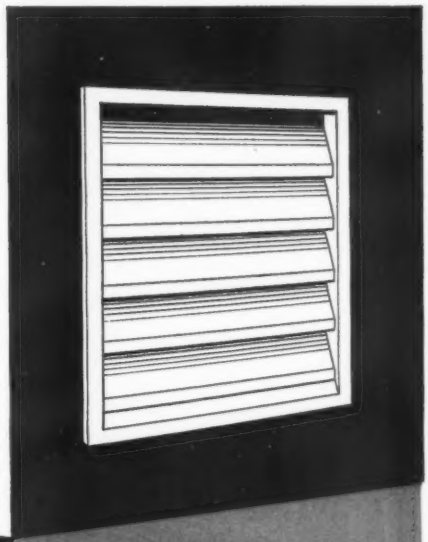
Flavels (who pioneered smokeless grates in the 1920's) also manufacture a full range of built-in, labour-saving appliances details and prices of which will be sent on request — or your Flavel stockist will gladly give you further information.

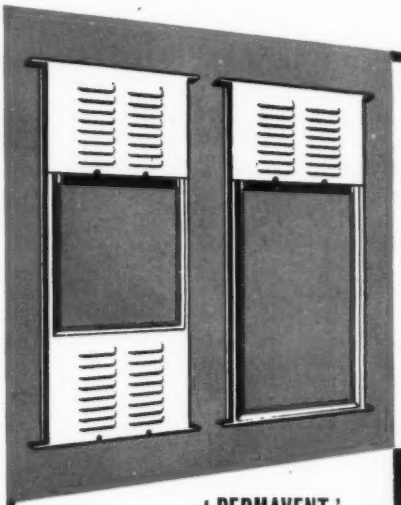
SIDNEY FLAVEL & COMPANY LIMITED · LEAMINGTON SPA

See a FLAVEL first

Telephone : 100 (Head Office) 3091 (Sales Office) Telegrams : FLAVELS

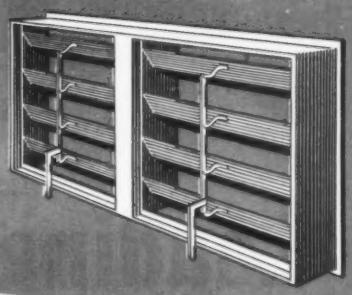
BUILDINGS MUST B-R-E-A-T-H-E





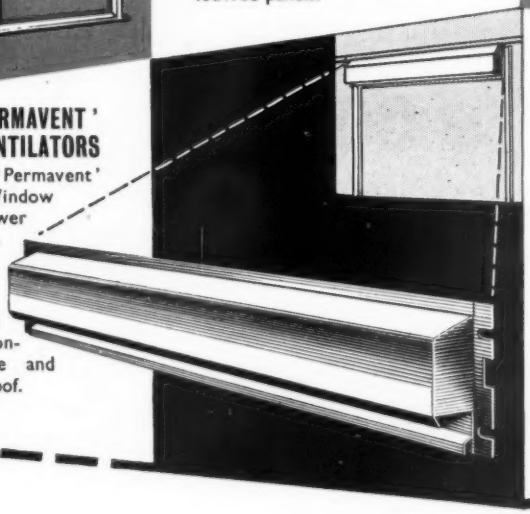
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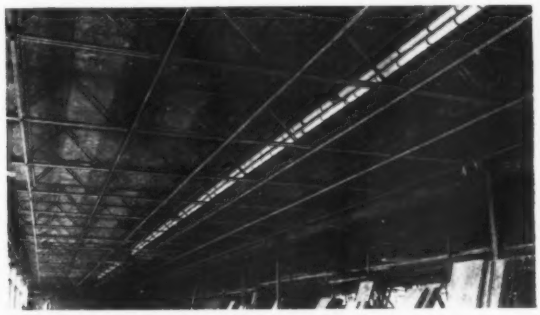
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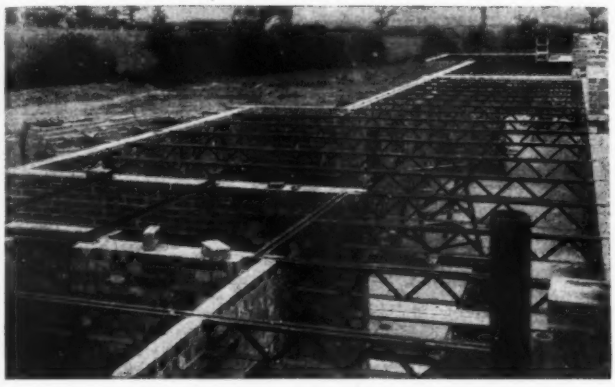
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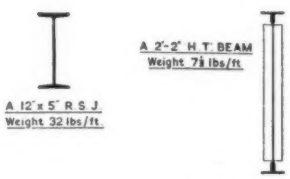
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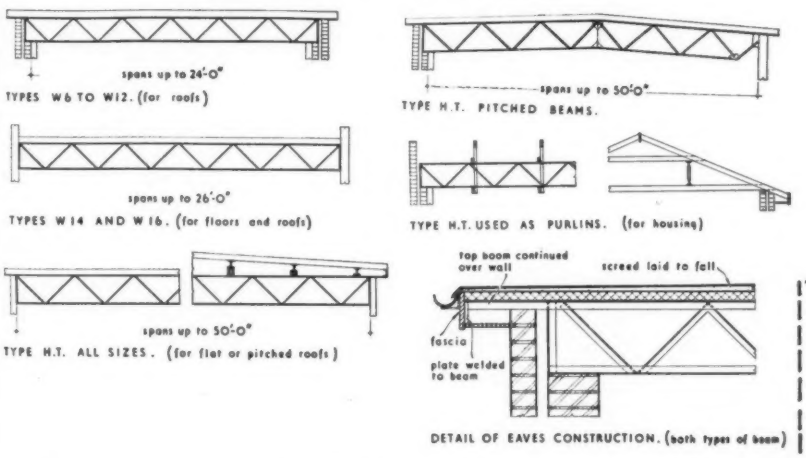
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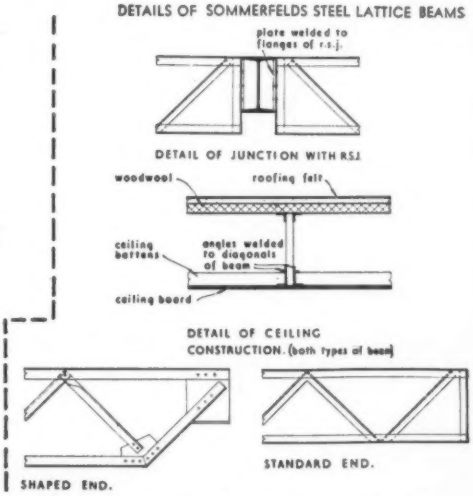
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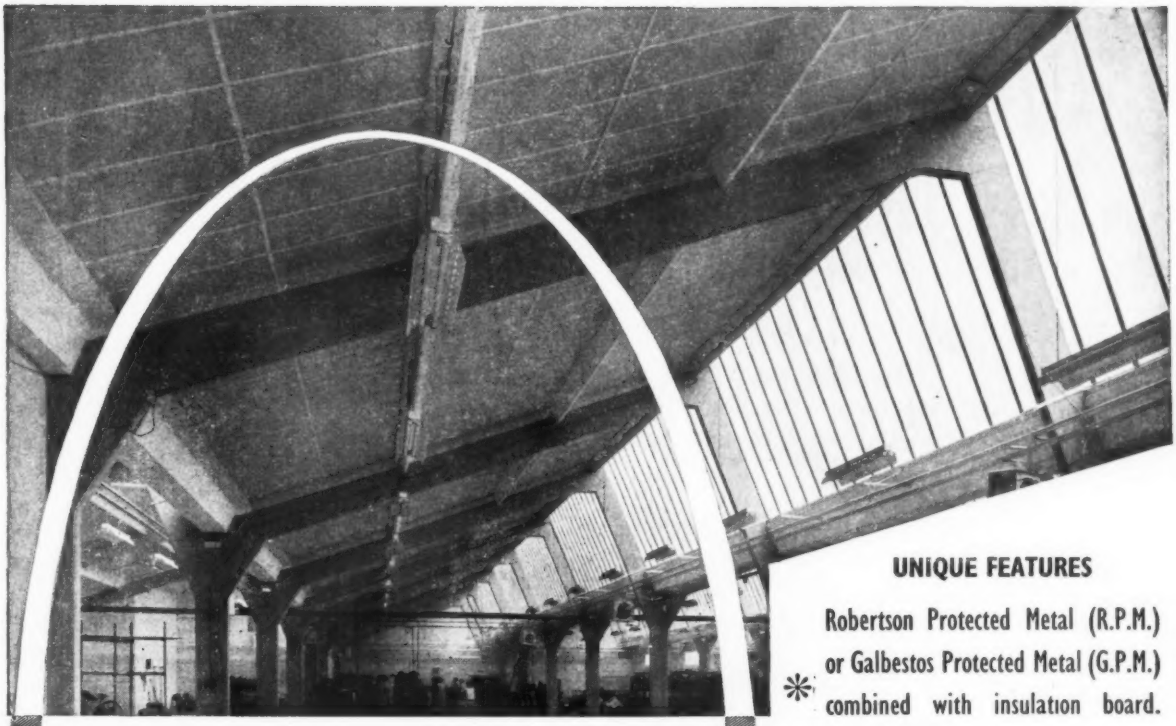
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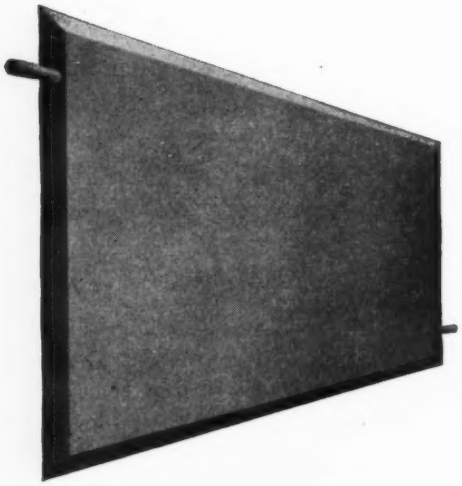
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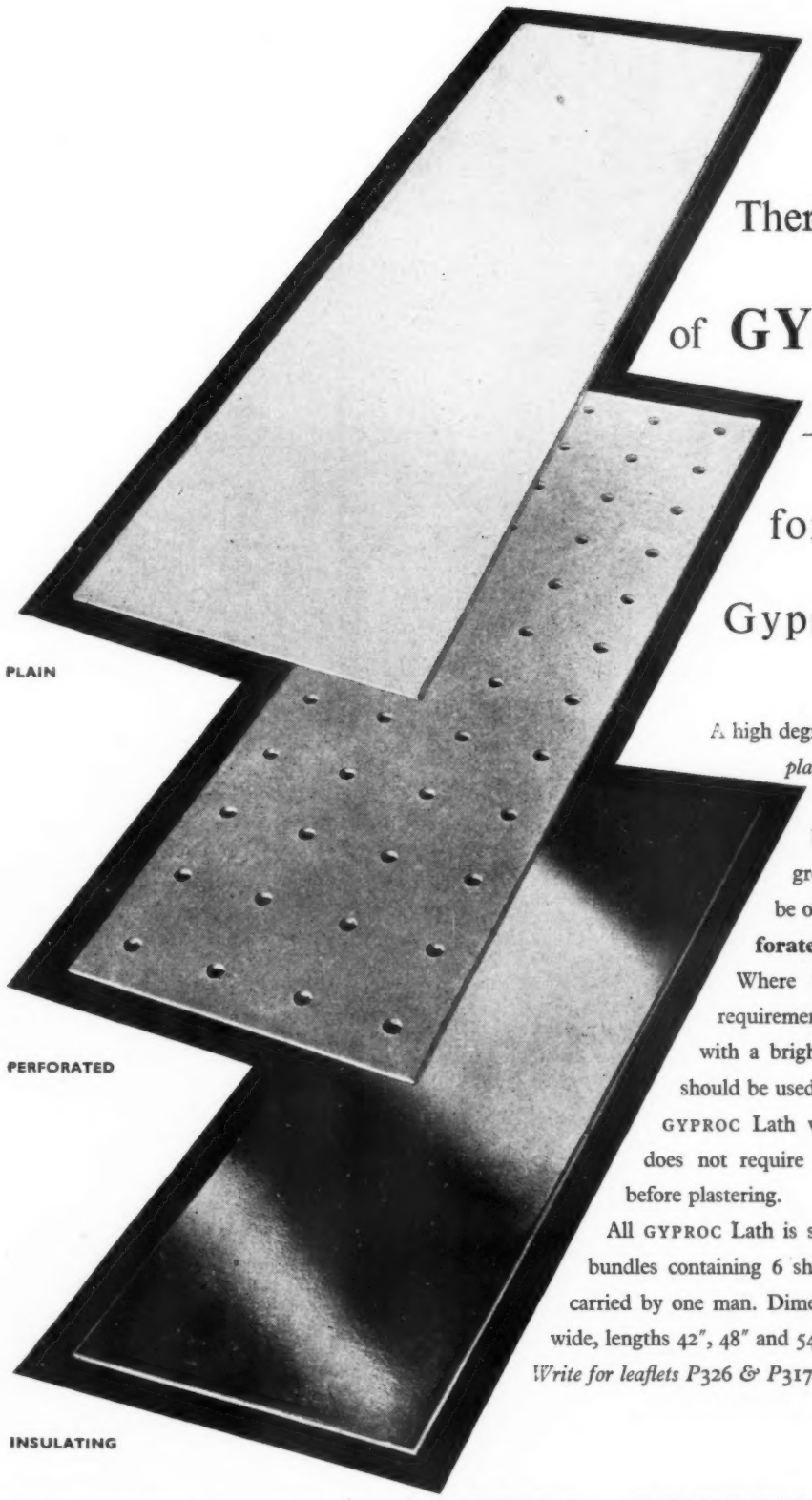


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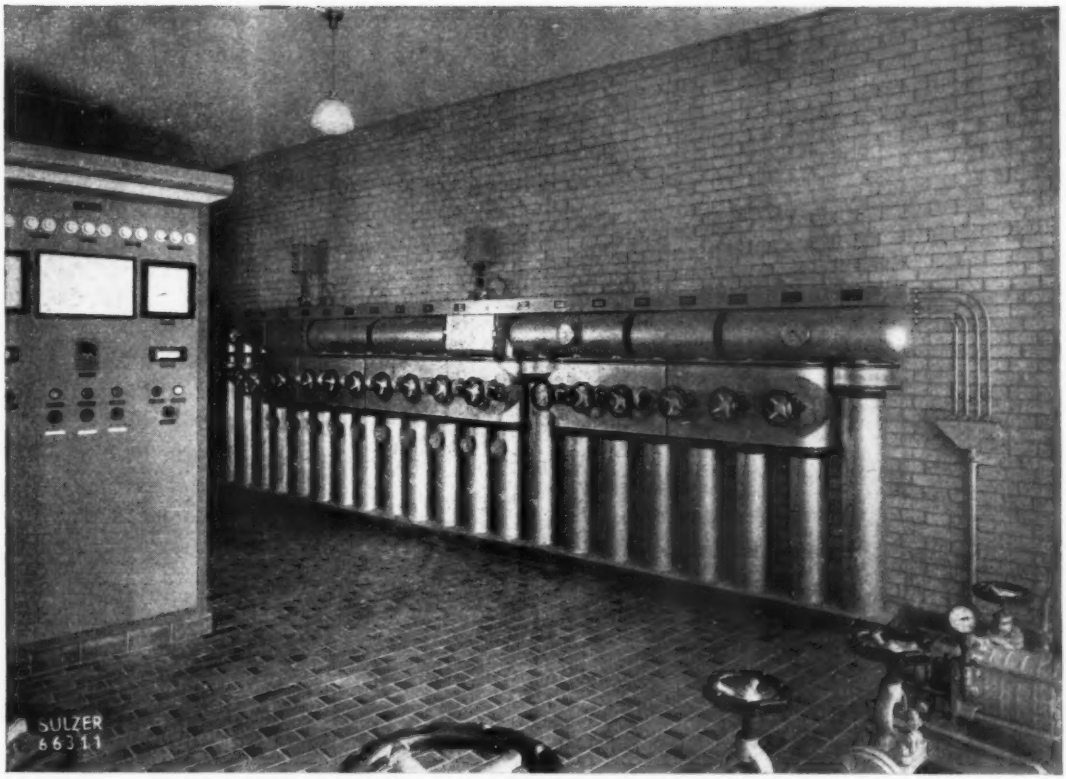
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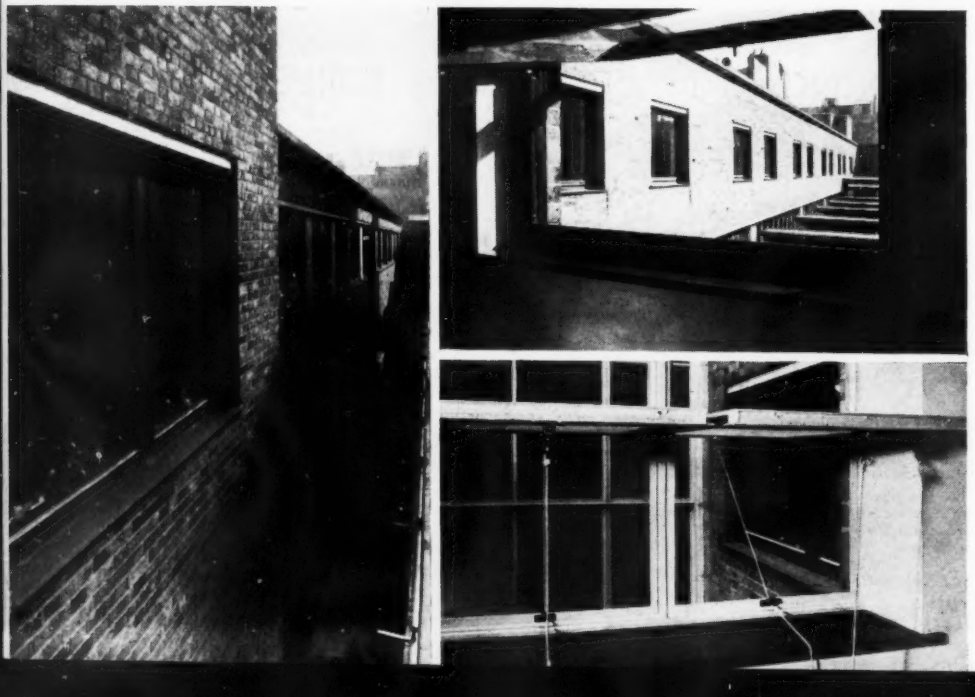
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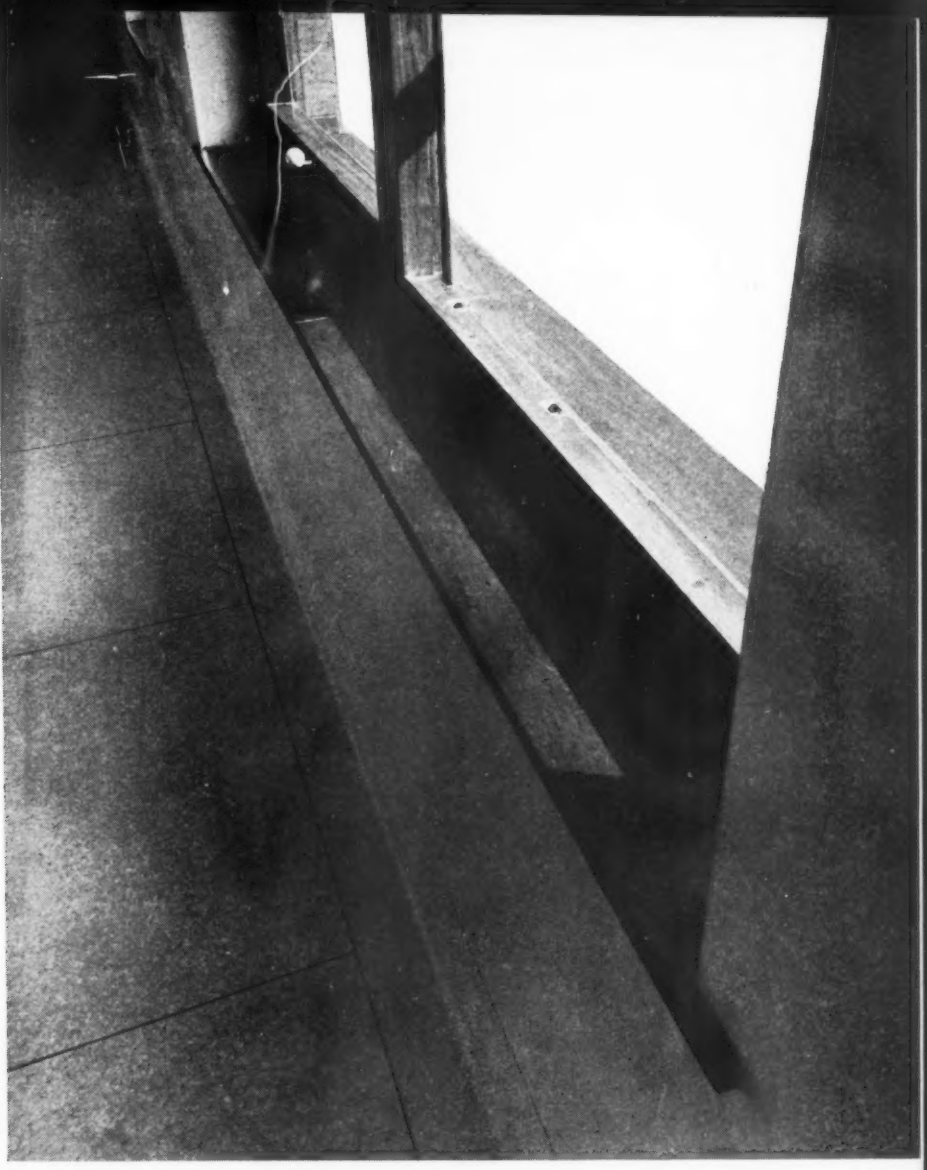
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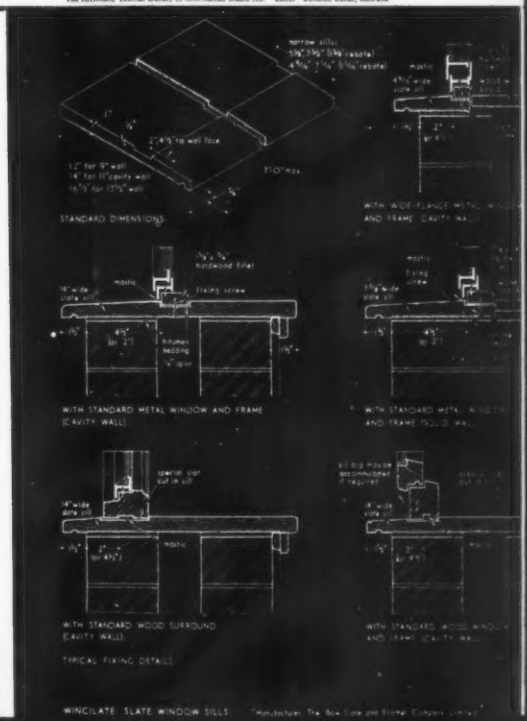




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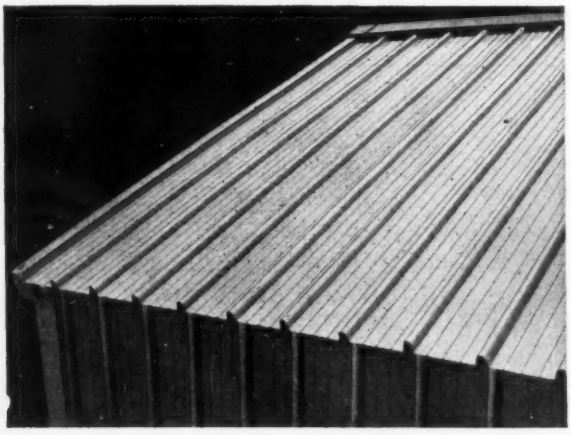
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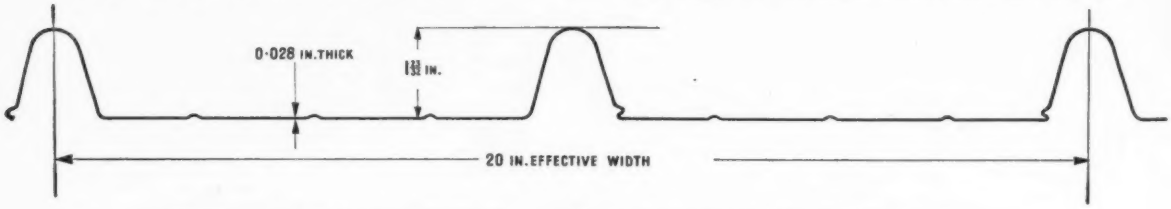
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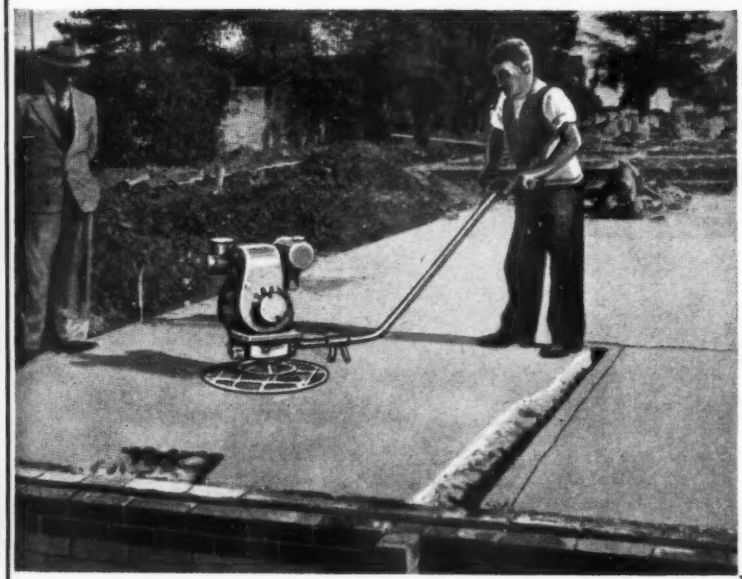
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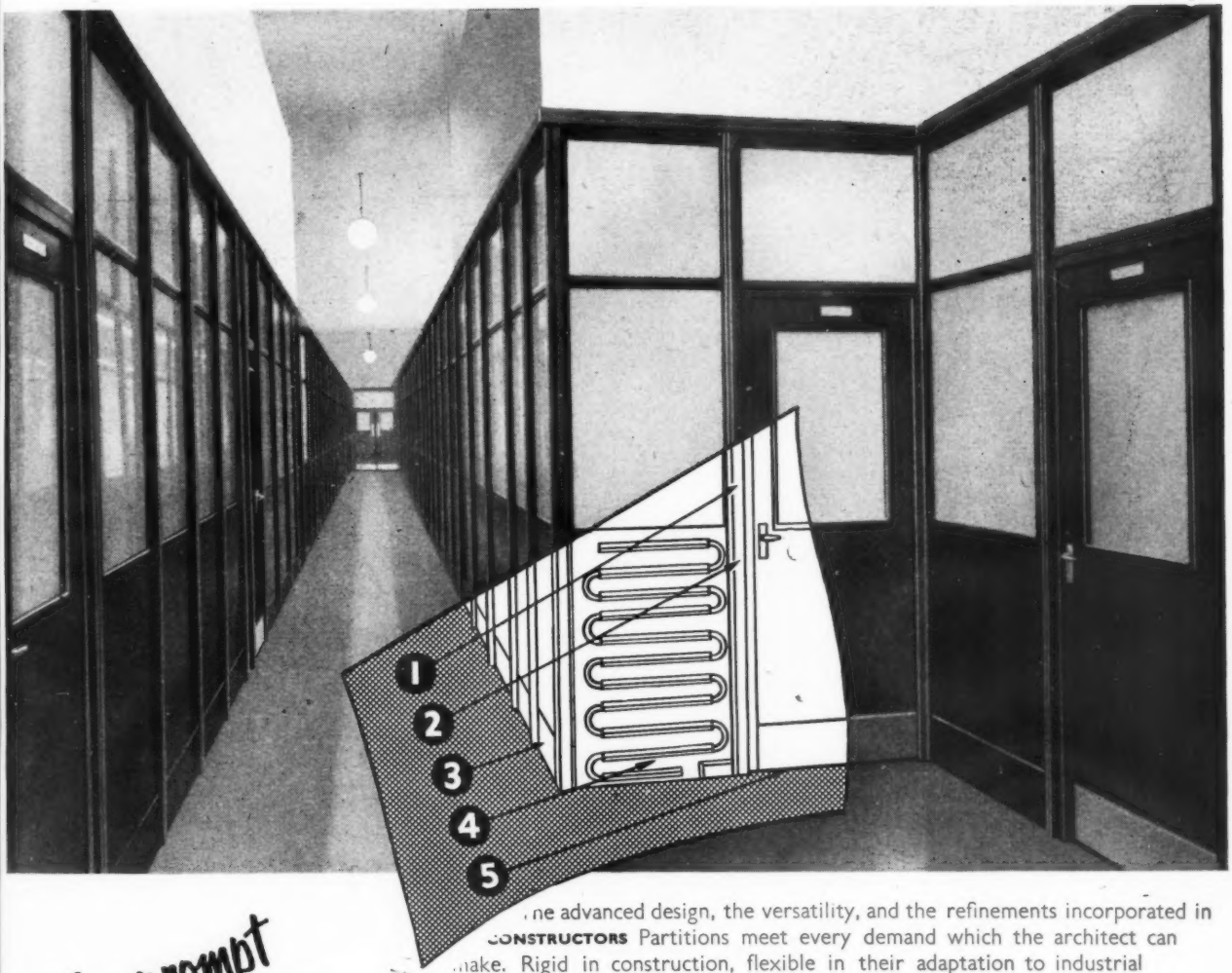
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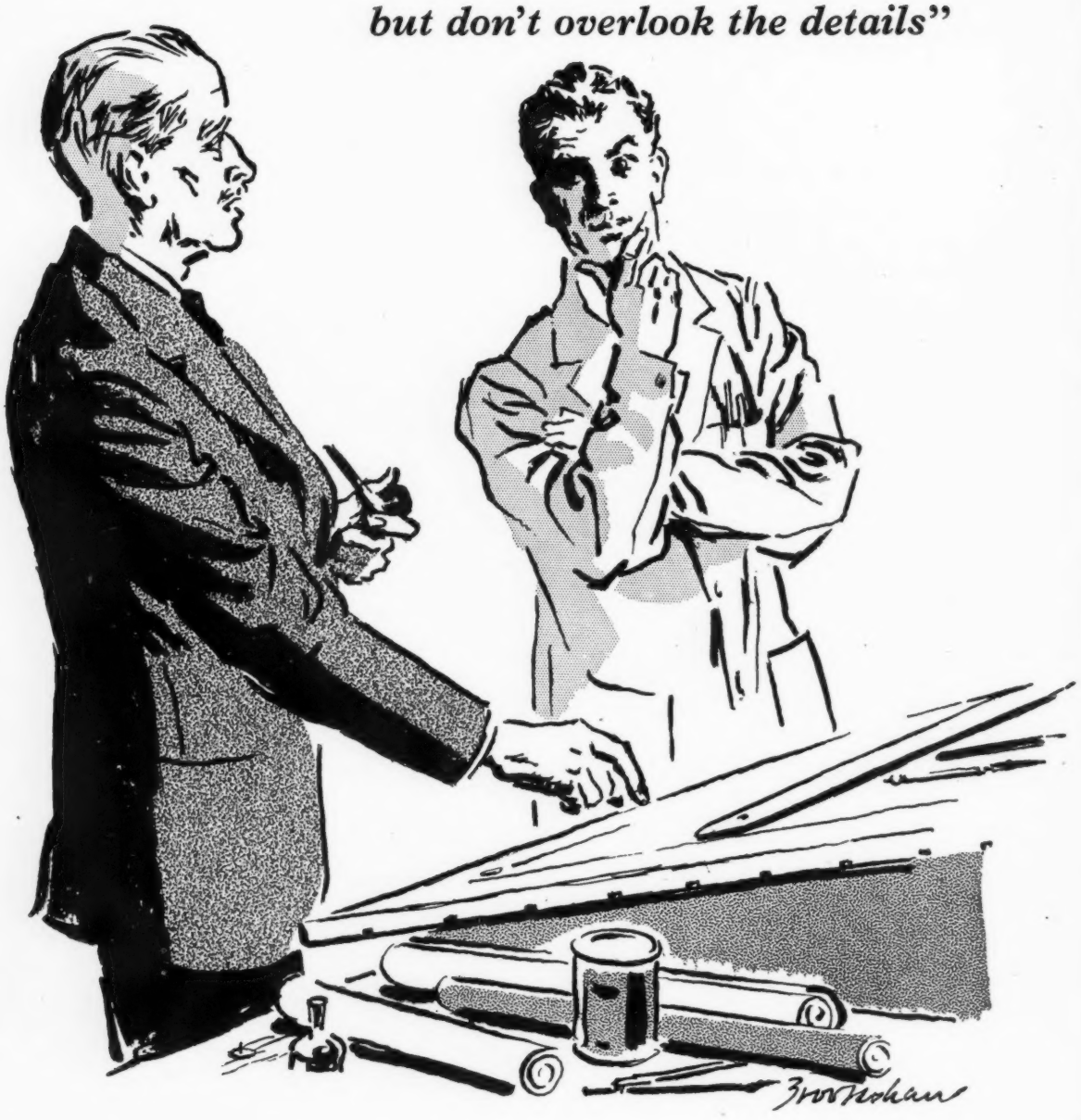
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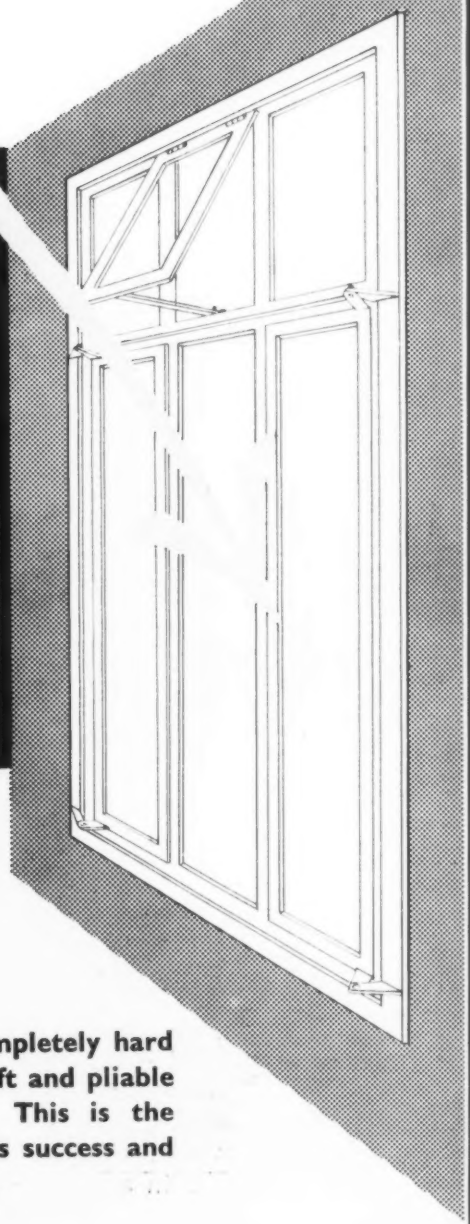
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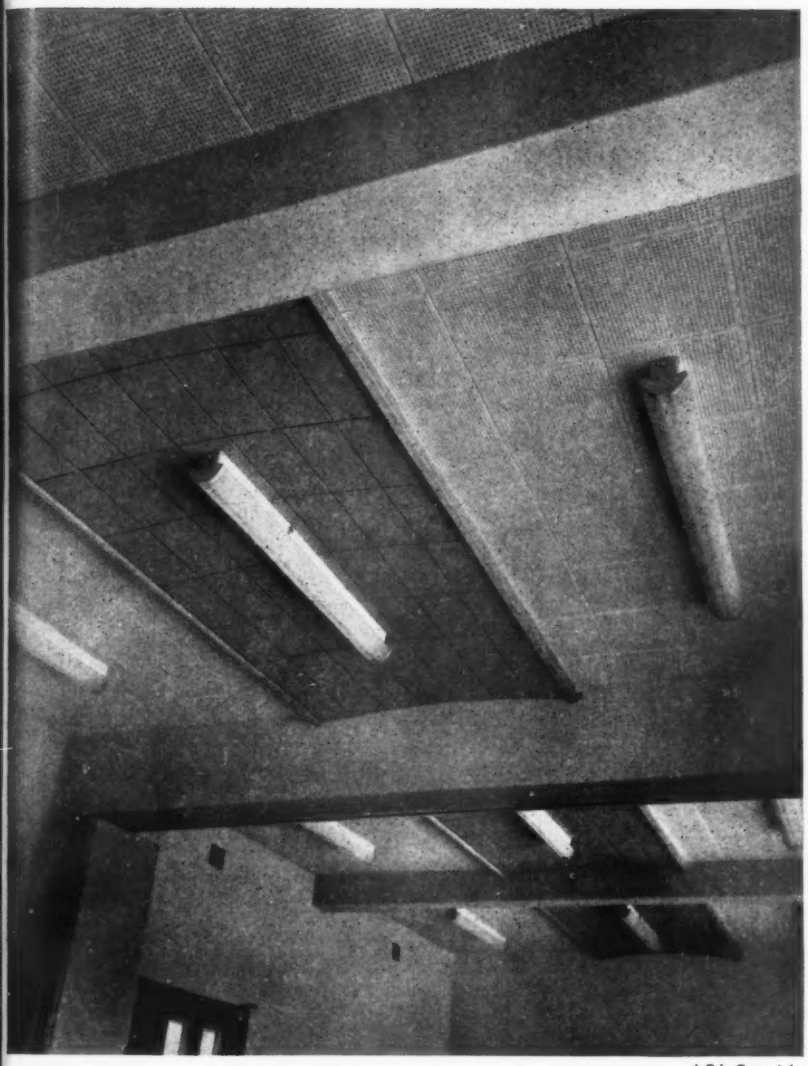
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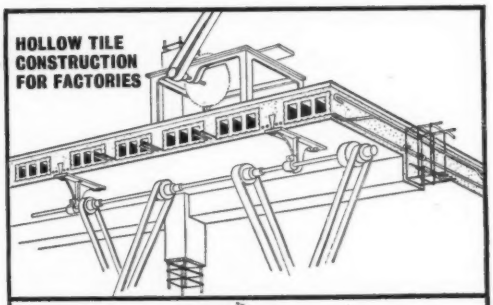
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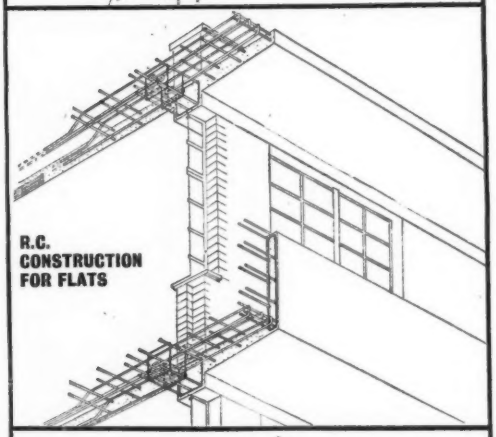
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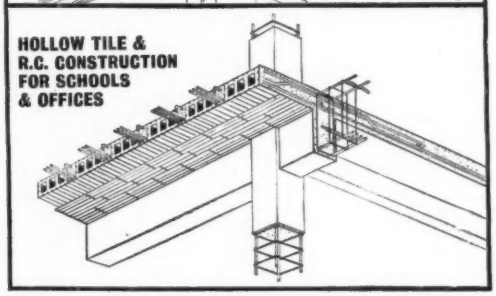
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A view of the Cole Valley sewer at Birmingham under construction by Turriff (with acknowledgments to Sir Herbert Manzoni, C.B.E., City Engineer).



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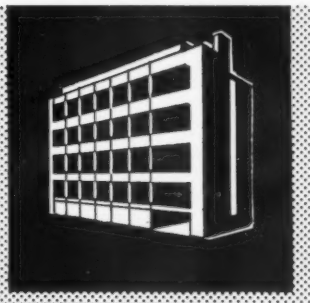
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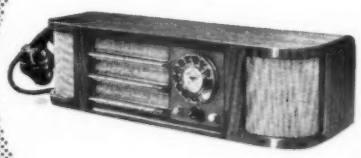
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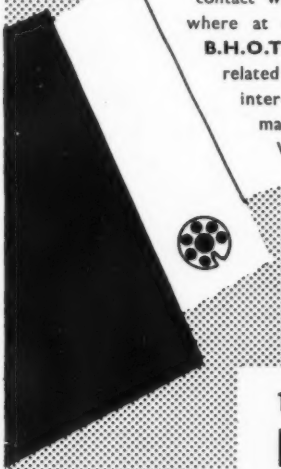


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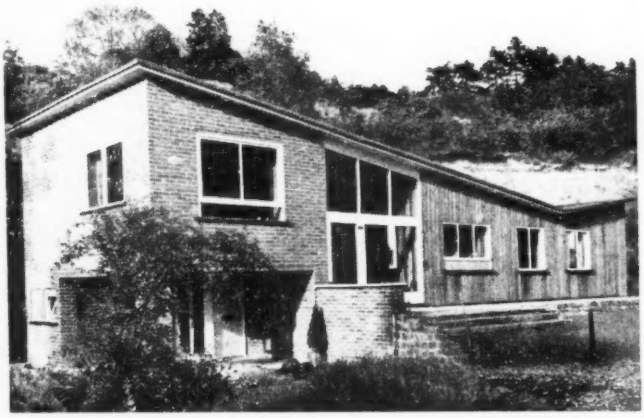
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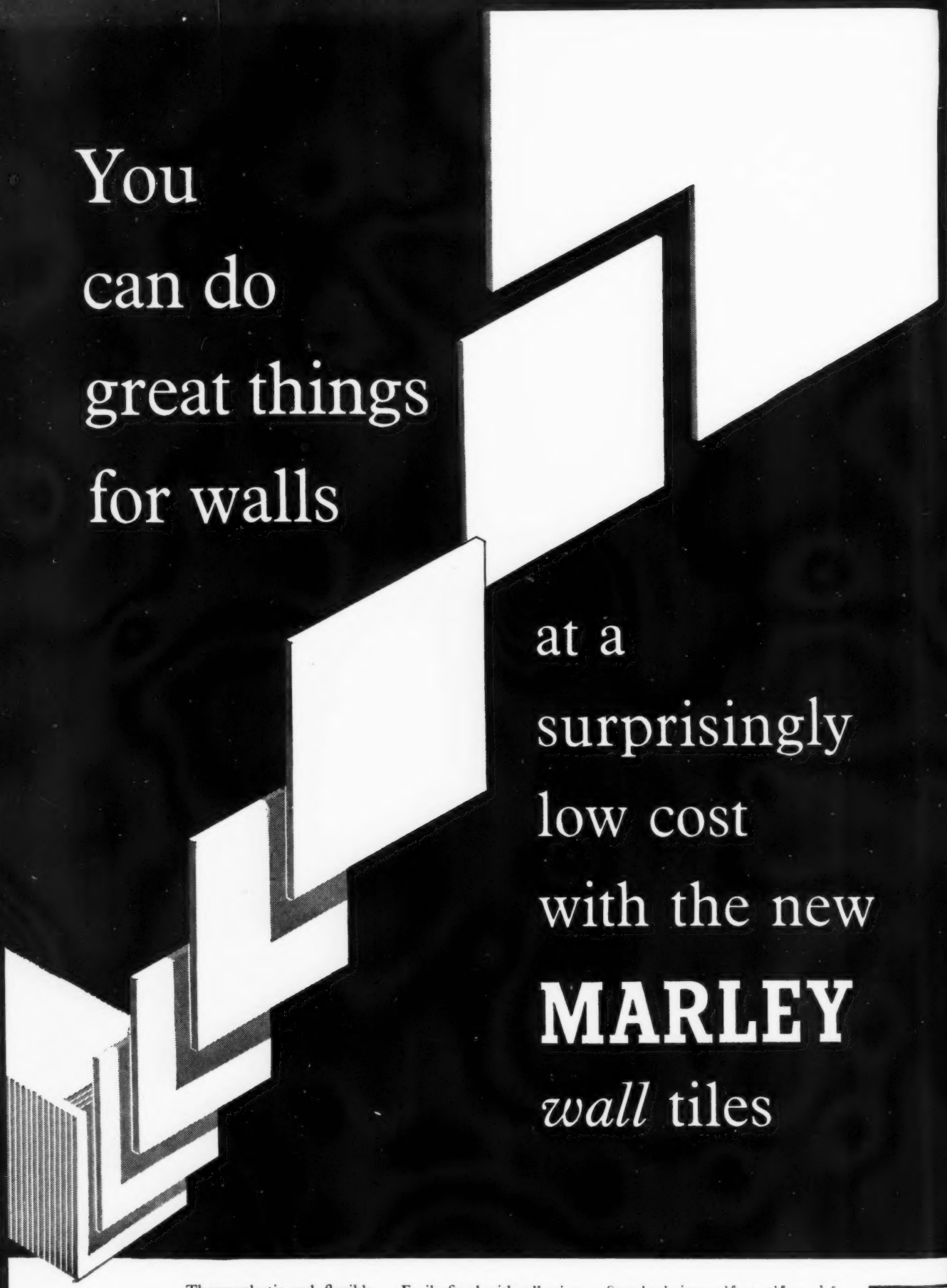


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ALAS, POOR VLASOV!

The sacking of Alexander Vlasov and other top Soviet architects may have come as more of a surprise to the public than to the profession. Ever since Khruschev attacked the extravagances and grandiosities of Soviet architecture in an address to a Congress of Architects earlier this year, a sense of doom must have been hanging over many heads. There is little the RIBA Professional Practices Committee can do about such treatment since it appears that Vlasov, in spite of the *Daily Express* statement that he is Russia's "top architect," is not in fact among the dozen or so Russian members of the RIBA.

When sacked, Vlasov was in New York as a member of a group studying US building methods. It is reported that his private talk with Frank Lloyd Wright had incurred official displeasure—they had probably both been bemoaning the good old days of "Usonian" or Socialist-Realist architecture respectively. ASTRAGAL can hardly believe that this precipitated any sacking, since Wright is one of the few western architects admired in Russia.

*

However, the method and timing of Vlasov's sacking could hardly be more Russian and news-making. If he had been merely sacked in Moscow we might have seen nothing more than a few lines in the Press. As it was he was sacked in New York, hastened to Moscow *via* Paris where demonstrations were made which can have done no more than embarrass the man. Thus is the world informed quite categorically of a change of view. Meanwhile in Russia itself the usual workers' demonstrations have been made against building extravagance on various sites such as the Olympic Games Stadium, and a block of offices in Kiev. The word has gone out that "Soviet architecture should be characterized by simplicity, austerity of form and economy."

*

We all look forward to the results, but these are certainly drastic, if no doubt effective, methods of achieving them.

ALL THIS, BUT NO ESTHER WILLIAMS

The Admiralty's new research buildings at Teddington, opened briefly to the Press a few days ago, and never to be seen by outside persons again, proved to be both an exciting and a disappointing experience. The buildings themselves have an under-designed quality, but not the sort of under-design that comes from deliberate restraint; it seems rather that the modest fellows at MOW failed to be excited by the extraordinary things that went on inside—failed even to rise to the challenge of a dome bigger than that of St. Paul's. All right, so money *was* short as ever (or was it, on a million-pound budget?) but you don't *have* to be rich to be inspired.

*

However, the contents of these rather underdone structures were a different matter. The behaviour of objects travelling at speed under water is the sort of subject that cannot be studied by string-and-firewood methods, and the *raison-d'être* of the giant dome was a circular channel in which torpedoes and such can be whirled around at high speed.

*

Genuine Captain Nemo stuff this, as one looked into the channel through massive plate glass windows let into its side and watched the test model hurry past through water so clear it wasn't even green. The power for the model comes from a gigantic rotating arm and streamlined section which swishes round just above the surface of the water, turning on (needless to say) the largest taper-roller bearings in existence, and propelled by a motor with a peak power of over 1,900 horsepower. The view upward from the motor pit, which is in the island in the middle, with the great grey arm turning against the background of the dome's dark underside, webbed over with a light steel truss structure, was strictly Wellsian, and unforgettable.

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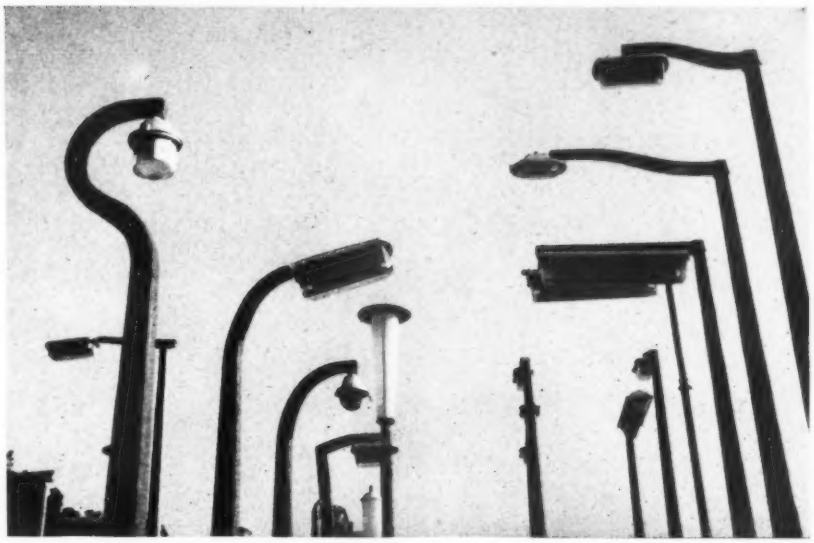
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POLE VAULTING

One has come to expect a fair amount of coming and going on the part of high-powered American architects, but even ASTRAGAL was a little taken aback to be greeted casually the other morning by William Wurster, the popular and charming Dean of Architecture at the University of California, with the remark that he "had just flown in over the North Pole for a few days." Dean Wurster is a leading exponent of that indigenous Californian style named by Lewis Mumford "Bay Region." Before returning in the late '40s to his native California, Wurster was formerly Dean of Architecture and Planning at MIT. His wife, the famous housing expert, Catherine Bauer, tells an anecdote which throws an interesting sidelight on the rapid development of America. Miss Bauer, coming from a family who settled on the older East coast in the mid 19th century, still virtually considers herself a European immigrant; while Dean Wurster, whose family emigrated from Europe to California about the same time, rates more glamorously as an original settler.



ASTRAGAL *writes on this page about new road signs, one example of which—"a weak attempt at realism"—is shown on the right. And while on the subject of roads he takes the opportunity of publishing this exclusive picture of the first national rally of agents of Subtopia. It shows the Ruination of Skylines section in plenary session, and was smuggled out by one of* ASTRAGAL'S *undercover men. Joking aside, however, this sample collection of current production lamp-posts, which was assembled for a recent lighting engineers' conference at Folkestone, is a terrifying document of the variety of right and wrong answers to any particular lighting problem that are at the disposal of the average borough engineer.*



ROAD SIGNS

It is quite time that the whole official range of traffic signs was re-examined. Those in use have grown rather than been designed. The Ministry of Transport is said to be bringing out a new booklet, establishing the official signs once and for all, and it will be a tragedy if the opportunity is not taken to get a qualified industrial designer to co-ordinate them and redesign them where necessary.

*

Some of the new designs that have been added to the existing somewhat random collection have already been illustrated in the Press and they do not suggest that the opportunity is being taken to bring them up to even a passable standard. I reproduce here the new warning sign for schools, which the Ministry suggests should replace the present flaming torch. This really isn't good enough. The significance of the torch may have been a bit obscure, but at least it constituted a symbol; there is little to be said for this weak attempt at realism.

*

Then there is the question of lettering, of which there is far too much. Is it true that this is for legal reasons: that under British law motorists who ignore a sign cannot be prosecuted unless its significance is given in writing as well as by a symbol; if so a Ministry that can issue regulations about the use of signs can surely arrange to have the law changed? And what lettering there has to be should be of more appropriate character. Are capitals really better (that is, more readable) than a mixture of capitals and small letters? I wonder whether this has been tested from a moving vehicle.

*

Finally, of course, there is the question of conforming with the range of signs already established abroad: an obvious thing to do, but how hard has the Ministry of Transport tried? I would be much happier about all these questions if I knew that the Ministry was taking the advice of the COID before proceeding too far in a necessary task which is really a major piece of industrial design.

TWO AMERICAN BOOKS

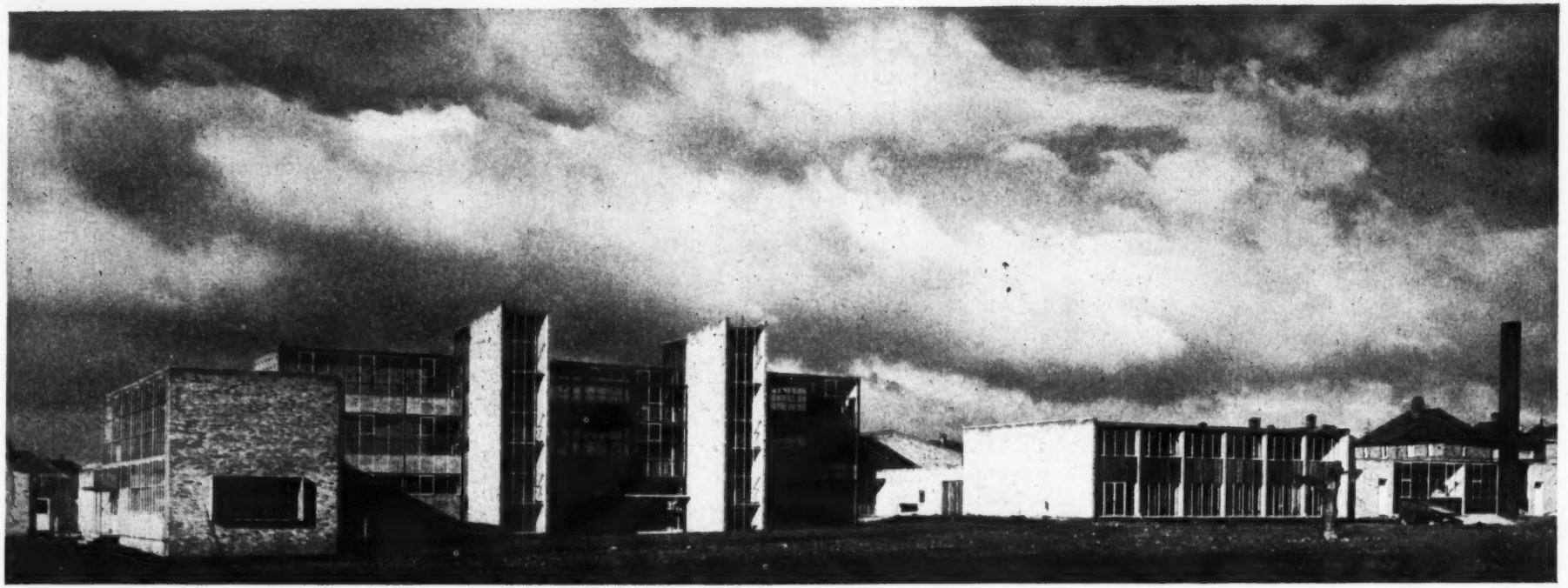
Two solid tomes of typically-thorough American historical research have thumped down on my desk lately. The more massive of the two is Professor Hamlin's on Benjamin Latrobe,* the near-contemporary of Nash and Soane whom we think of in terms of neo-classical Philadelphia and Baltimore, forgetting that he was Yorkshire-born and has a handful of English buildings to his credit. The book is a labour of love, and although ASTRAGAL finds such love altogether praiseworthy, it is a pity that the labour has to be worn so much on the sleeve; seven pages of close-printed acknowledgments, for a start, is making a mountain out of a molehill of art-historical etiquette. Nevertheless, if you want the facts on Latrobe—and they are worth having—you will find them in this book, which covers every aspect of a multi-faceted career that included engineering and the graphic arts as well.

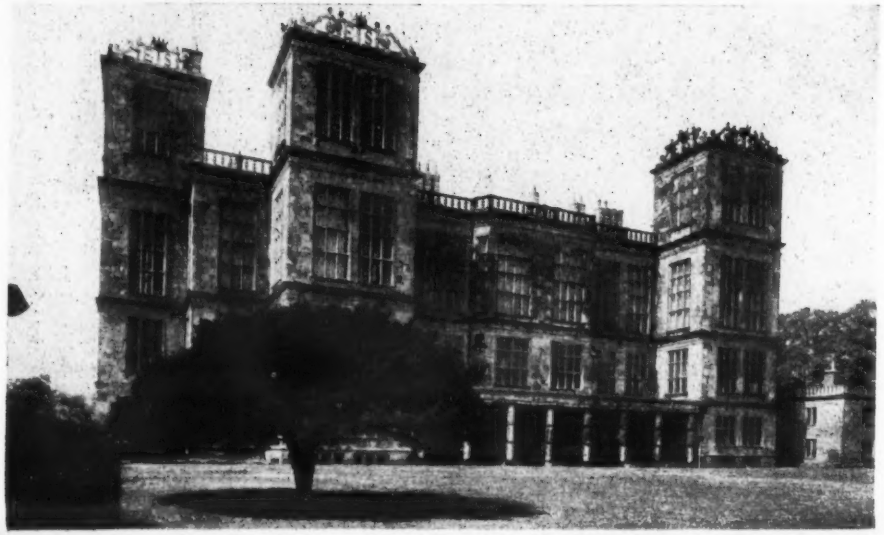
*

Less massive, either in format or method, is Emil Kaufman's *Architecture in the Age of Reason,** one of those cross-threaded and encouraging books that goes sideways through the bulkheads dividing one watertight art-historical compartment from another, and deals with the rise of neo-classical architecture simultaneously in England, France and Italy (in that order too, amazing as it may seem). The first

**Benjamin Henry Latrobe*, by Talbot Hamlin. O.U.P. (Available January at about 90s.)

*O.U.P. 80s.





The Griddishness of English Architecture

" So, you see, it is nonsense to say that this kind of architecture is not English," said Professor Nikolaus Pevsner to his TV audience last Thursday, as he showed them the stair-tower elevation of Remington Road Secondary School, Sheffield (above), designed by Basil Spence and Partners in collaboration with Hubert Bennett. He was comparing the school with the elevation of that most English of late-Elizabethan houses, Hardwick Hall (left), which had been on the television screen a few seconds earlier—with the same four-square towers, the same vast expanses of glass, the same grid-like facades. THE ARCHITECTS' JOURNAL takes no credit for having anticipated this assertion of the Professor's (see ASTRAGAL, November 10) when he first drew attention to Hardwick Hall in one of his Reith Lectures three weeks ago: the deduction was there for any architect to make, but now that Professor Pevsner has made it, with precise illustrative proof, through the medium of what has been called " the greatest and most persuasive medium of visual education ever invented," perhaps fewer members of the public will be gulled by the assertions of certain vested interests—academic and otherwise—that modern architecture is " un-English."

architect mentioned in the book is Christopher Wren, the last to be brought into the argument is Walter Gropius, and in between the reader has been everywhere and seen everything.

GOOD DESIGN GOES IN CYCLES

Impressed by the way an increasing number of architects (and other people) nowadays travel on two wheels instead of four, ASTRAGAL cast a car-show-jaundiced eye over the Cycle and Motorcycle show at Earls Court—and liked what he saw. Whether it was the Triennale, or Lollo and Sofia, that persuaded the English on to scooters is for sociologists to settle. Anyway, the scooter is here to stay, no longer as part of the coffee-bar ploy, but as an essential part of our traffic pattern, and it is gratifying to report that the best-looking part of that traffic pattern will be a British machine—the snug, shapely and clean-lined *Beeza* which was one of the star turns of the show.

*

Most of the scooters at the show were foreign machines with English names, or foreign engines in English frames, and we clearly have a long way to go in scooter design before we catch up. The same appears to be true with the big racing machines which are developing into science-fiction monsters that bear little relation to the motor-bike as we think of it.

*

As for mere man-powered two-wheelers, one doubts if Lethaby would use the bicycle as a standard of comparison if he were writing his *Architecture* today. No doubt the product is as efficient as ever—and the thinness of some of the supporting members suggests that structural engineers might look at more cycles with profit—but the presentation, the styling and colour work, now far removed from the classic black with gold lining, display a sophistication and sumptuousness which he would have abominated and which ASTRAGAL finds rather pleasing.

THIS ENGLAND

Request recently received by the *Architectural Press* book department: "Please supply one copy Gibberd's 'The Architecture of England from Normal Times to the Present Day'."

ASTRAGAL

POINTS FROM THIS ISSUE

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ABS **competition** for old people's homes page 728
Part-time courses: changes in RIBA policy page 728
The Tretol **house competition:** what readers think page 730
A twenty-page report on the **Building Exhibition** page 735

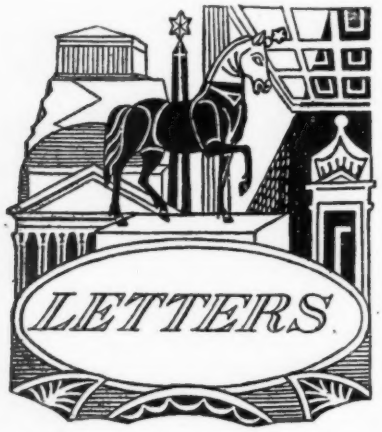
The Editors

THE BUILDING EXHIBITION

BY the time you read this, one more Building Exhibition will be over. This year's was larger than ever, and it seemed even more overwhelming—perhaps because there were far more two-storied stands than usual on the ground floor. This was not, as readers might imagine, because exhibitors wanted to comply with what we glibly call "the modern architectural trend"; it was due to the happy discovery by many stand-holders that they could, by this means, both enjoy better publicity and provide a space to hang up their coats and let down their hair. Architects are by nature averse to the Exhibition: they spend a good part of their office time evading salesmen, and to deliver themselves in this way into the enemy's hands seems at best undignified and at worst suicidal. Yet this is a pity: for this, the building industry's shop window, gets more interesting every two years. We hope, therefore, that more architects attended this year and that more used the free tickets so generously provided by the management for the profit of the Architects' Benevolent Society. The description, "shop window," helps to show the inevitable limitations of the Exhibition, as seen from the architect's point of view: in general only those products which are thought to have a ready sale are shown there. Fortunately there are exceptions: a few firms made the Exhibition an occasion for flying a kite: for showing, for instance, some interesting foreign product which is not yet available, in the hope that an English backer can be found for it, or of showing a prototype to test market reaction. This is an excellent habit: it gives the architect a chance not only to see what is coming but to speed its arrival with his encouragement; and it certainly is to the advantage of the manufacturer. Indeed, one of the features of this year's Exhibition was the significant number of relatively new (and often, in their way, quite revolutionary products) which put in their first public appearance in the Exhibition of 1953. We wonder, for instance, if the heat-pump idea would have taken on so vigorously were it not for that little stand tucked away in a corner two years ago, and whether prestressing would be quite the success it now is, were it not for the fine exhibit of the Prestressed Concrete Development Group in 1953. And there are several more examples we could quote. The moral, therefore, is that manufacturers next time should be as anxious to get new products ready as they are to prepare new trade literature for the old ones, and that architects should make a point of turning

up in ever greater numbers to appraise and to say what they want.

Just a cautionary word, in conclusion, to DSIR and BSI. Both these bodies gave a poor show, not so much in the material they brought as in the way they displayed it. We comment on this again when we discuss their stands later in the issue. It is sufficient, therefore, to say here that though we appreciate this reticence (it is, after all, in the tradition of English public servants), we think it misplaced. The good these excellent bodies do depends directly on the impression they make on the average builder and the average architect. For both organizations this was a supreme opportunity for reaching these important people: this time, we fear, it was a supreme opportunity missed.



Hubert Bull, L.R.I.B.A.

"Gratified"

R. L. Barclay, A.R.I.B.A.

Not Enough Money

SIR,—Your correspondent, H. A. Furness (AJ: November 10), is quite inaccurately informed in the matter of professional fees relating to the Birmingham Colleges.

The ratio of increase since 1939 is in line only with all other building works and nothing whatever like "four and a half times those for a similar job in 1939." How very different it would be for the architects and others concerned if he were right!

HUBERT BULL.

London.

No More Poaching

SIR,—I say, you chaps, have you heard? This business about salaried architects, it's all settled, about poaching I mean.

All public authorities have agreed to stop paying us senior bods £750-£1,000 p.a. for doing work which would bring us £3,000-£4,000 net in private practice; they're going to pay men in charge of jobs the scale fees, based on three years' average work-load, less an agreed proportion to cover running costs, superannuation, etc.

The local authorities will abolish the 6 per cent. of salary with which we now pay for our "security" on retirement. The Civil Service will institute establishment after 18 months' service instead of the present variation between one day and 20 years, will organize its architectural departments as architects' offices, will abolish the practice of arbitrary de-motion after 10-15 years' service, and will institute machinery through which grievances and injustices can be guaranteed reasonably impartial consideration.

So you see, we are going to be decently paid and enjoy some genuine security, so we shan't feel the incentive to sweat our guts out trying to supplement inadequate salaries and to insure against our largely illusory "security"; we shall no longer feel the itch to assert our architectural independence from frustration and interference by doing the occasional private job for aunt or cousin.

Poaching, in fact, is out.

In return, private practitioners have agreed to cease bolstering up their clientele by encroaching on our work. They will undertake no further commissions for Government Departments and local authorities.

So you see, sauce for the goose has at last been recognized as sauce for the gander.

"GRATIFIED."

Disappearing Windows

SIR,—L. E. Jackson (AJ: October 13) expressed the hope that car-type windows that disappear through rubber strips into the wall cavity will be a development of the future.

A vertical sliding-sash, with solid rod suspension, that disappears into the wall cavity below the cill level, has been on permanent exhibition in the factory of a plastic laminate manufacturer in Kent for some years. The weathering is on the rubber-strip principle and the total thickness of the external wall is, I believe, less than 3 inches. The form of construction was successfully used for schools. Thin rubber weather strips are, of course, subject to deterioration, particularly where friction occurs, and do not provide a satisfactory long-term answer. Perhaps a suitable plastic would be more successful. The present higher cost of this type of window is due probably to the unfortunate lack of overall demand and to opposition within the trade.

I was privileged to see some details for a hospital project for the World Health Organisation (Architect: William Vetter) which had similar vertical sliding sashes, the lower unit disappearing into the cavity below cill level and the upper unit sliding behind a glass fixed light. Is Continental practice ahead of ours?

R. L. BARCLAY.

Kent.

(*More letters on page* 730)



COMPETITION

Old People's Homes

A first prize of £100 is being offered by the Architects' Benevolent Society, to the winner of a competition for the design of twenty old people's homes.

The assessors (H. S. Goodhart-Rendel, F.R.I.B.A., Arthur W. Kenyon, F.R.I.B.A., and G. Grenfell Baines, A.R.I.B.A.) may award another £75 between not more than three competitors.

Conditions can be obtained from the Secretary, ABS, 66, Portland Place, W.1, early in December. The last day for submitting designs will be April 6, 1956.

RIBA

Part-time Courses: Some Changes in Policy

The Council of the RIBA has made several decisions after considering the recommendations of the Architectural Education Joint Committee on the conditions of recognition of part-time courses. They are as follows:—

The Council have given approval in principle to the recognition for exemption from the RIBA Examinations of part-time courses (to be described in future as *composite* courses) provided they are set up and administered by schools of architecture holding full-time courses recognized for exemption from the RIBA Intermediate and Final Examinations. The schools concerned will be expected to collaborate with the RIBA allied societies and architect-employers in their areas in ascertaining the demand for such composite courses, arranging for the release of students to attend school, and keeping the RIBA informed of proposals. The RIBA Visiting Board, following normal procedure, will inspect and report upon composite courses for which recognition is sought.

The Council have rescinded their policy on the distribution of recognized schools as envisaged by the Report of the Special Committee on Architectural Education, approved in 1944. This will enable Schools of Architecture (including "listed" schools) to apply for recognition for exemption from the RIBA examinations for their full-time courses. The RIBA Visiting Board, following normal procedure, will inspect and report upon such courses for which recognition is sought.

The Council have given approval for full-time and part-time students, both in "listed" schools and schools recognized for exemption from the RIBA Intermediate Examination, who wish to take the RIBA Intermediate or Final Examination, to be exempted from the submission of Testimonies of Study to the RIBA. In future such students will submit to the authorities

of the schools concerned, for consideration by external examiners specially appointed by the schools, portfolios of school work covering the same ground as that required by the RIBA regulations for Intermediate and Final Examinations Testimonies of Study. The Schools will be inspected from time to time by the RIBA Visiting Board.

The Council, having taken the view that a test under examination-room conditions is the only satisfactory way of testing a candidate's capability in design, have decided to continue the existing design examinations. They have, however, asked the Board to draw up a scheme to make the test a more comprehensive one by reducing the number of Final Examination Testimonies of Study from four main and three subsidiary subjects to three main and two subsidiary subjects, the last of the three Testimonies of Study being expanded to include a design combined with working drawings, and possibly a report, to be awarded marks by the Testimonies of Study Examiners, the marks being placed to each candidate's credit in assessing the results of his examination in design. The Board have under consideration the implementation of this decision.

YORK

Conferences: Office Management and Townscape

Among the activities of the York Institute of Architectural Study planned for 1956 is a conference on architectural office management, from January 6 to 10, and a course on townscape, from September 13 to 18.

These will both have the support of the MOHLG, as will a course in modern techniques in timber construction, from April 6 to 10; a general course on protection and repair of historic buildings, from April 11 to 20, and a course on housing improvements and conversions, from September 6 to 11.

Three summer schools will be held in July and August, and from July 23 to August 11 there will be a course on landscape design.

Enquiries should be sent to the Secretary, St. Anthony's Hall, York.

MAINTENANCE

A Discussion Held at the Building Exhibition

On Tuesday, November 22, MOW and the LCC Brixton School of Building staged a discussion on "Building Maintenance" at the Empire Hall, Olympia. It was very well attended: Sir Thomas Bennett was in the Chair and the discussion was opened by two members of the LCC Architect's Department, A. W. Cleeve Barr, Senior Architect in Charge of Development, A. H. Edmonds, Chief Architect in charge of the Maintenance and Improvements Division, and by A. W. Yeomans, a contractor with special experience of maintenance work, and W. T. Jackson, the Director of Maintenance Services, MOW.

Cleeve Barr opened the discussion by pointing out that in his experience painting and decorating account for as much of the cost of maintenance as all the other classes of maintenance put together. From this he concluded that it was unwise to adopt systems of construction which relied on paint for an external finish, though he also made the point that paint was not merely a source of expense but was also a valuable rejuvenator of old buildings and that it must not therefore be wholly dispensed with. In the course of his talk, he instanced a number of detailed flaws in design in building which have been giving frequent trouble, among them the grit which is allowed to get into plumbing systems in the course of building operations, the failure to keep pipework out of reach of frost, the failure to give the plumber enough space to wield a wrench in a pipe duct, and the failure to give accessibility to windows for reglazing. On this last point, he pointed out that cradling can cost from £5 to £15 a time, and drew attention to the LCC's solution of providing either access balconies or vertically pivoting windows.

He commented on the almost insoluble problem set by rapidly developing techniques which gave no opportunity to check on durability, and suggested that, since the older text-book approach was no longer feasible, the only answer was for architects to have a better knowledge of the principles which must govern practice. Lastly, he warned about the vastly increased danger of damage by condensation which followed from our successful cutting down of ventilation rates and from the use of lightweight structures—a danger which made better insulation essential.

A. H. Edmonds, who spoke next, began by insisting on the importance of regular maintenance and suggested that buildings should be provided with servicing charts on the analogy of motor vehicles. He thought that architects should make a point of obtaining estimates for maintenance costs when they were designing a building. A. W. Yeomans, who followed him, outlined the difficulties the maintenance builder has to cope with. Likening the maintenance builder to the general practitioner in medicine, he pointed out that he had the disadvantage of having to contend with wholly unqualified competition and expressed the hope that the newly-formed Board of Building Education would be able to "close" the profession. He then described the problem of the very little job: how a washer costing 1d. might, in certain circumstances, require the builder to send in a bill for 15s.—and even then lose 7s. 6d. He then discussed the problem created by the huge accumulation of work during the war years, on the one hand, and the impossibility of getting a sufficient supply of well trained men, on the other. Stating that there were at present 322,000 men employed in maintenance, he suggested that a high proportion of this was avoidable (this incidentally was contested later) and that therefore there was an important work of education to be done, on the lines of the successful campaigns carried out by the CUC and the industry's Accident Prevention Groups.

The next speaker, W. T. Jackson, the Director of Maintenance Services, MOW, outlined his Ministry's system for keeping a check on maintenance expenditure. Briefly, this system of "maintenance costing" requires that every job, however small, be the subject of a works order. The costs are "posted" to the building in the accounting record cards and priced copy orders are filed locally. This provides an essential record of work done, which in turn provides a means of getting information on materials. Costs posted to buildings are reported back quarterly and annually on running record cards under seven main heads and thus provide a means of keeping a check on the money spent on each building. Mr. Jackson affirmed the importance of this kind of budgetary control: he drew attention to the fact that the maintenance costs of a building during its normal life was of the same order as its first cost, and stated triumphantly that though the annual expenditure of MOW on maintenance is £14,000,000 his department is able to control the year's expenditure to within 1 per cent.

At this point discussion became general. Dr. Daish, consultant to the Association of Woodworm and Rot Eradicators, spoke of the damage and waste of money caused by the failure to call in experts in cases of damage by dry rot and worm. R. A. Wood, a building contractor, reported on the success of BRS—recommended zinc oxychloride treatment of walls infected by dry rot, and gave this as an example of co-operation between research workers and maintenance builders producing a workable solution to a difficult problem.

R. L. Bell, of FASS, suggested that general contractors should be willing to enter into five- or ten-year maintenance contracts at the conclusion of a job. Several speakers (including H. V. Lobb, representing the President of the RIBA) suggested that the credit squeeze and the resulting move to cut down on capital expenditure in building was likely to prove a bad economy. One speaker reported that roofs constructed to the Ministry's economical timber scantlings were beginning to sag. There were many who attacked modern lightweight materials as being particularly vulnerable to high maintenance costs, and there were others who went on from there to attack the principles of modern building. A speaker who suggested that solid draught-proof floors made smoky chimneys inevitable was shot down by Cleeve Barr; another who suggested that large areas of glass increased maintenance through subsequent breakage was answered by A. H. Edmonds, who stated that there was no evidence of excessive glass damage in new schools and that such damage as there was, was nearly all caused by vandalism and not by movement of the structure. The suggestion that bad design was the chief cause of maintenance expenditure was rebutted by W. T. Jackson, who said that MOW's evidence showed that bad design accounts for a very small proportion of the whole.

Sir Thomas Bennett, summing up, reverted to a point which had been made several times in the course of the evening: namely, the difficulty research people experienced in finding the right means of disseminating their knowledge. He pointed out that there was extant an immense amount of knowledge on maintenance problems but that it was not generally available, and he made the excellent suggestion that the LCC and MOW should give a lead by publishing all they know.

Sir Eric Seal, Deputy Secretary, MOW, proposing the vote of thanks, made the pertinent comment that, bearing in mind our vast heritage of obsolescent buildings, the figure of 322,000 men employed in maintenance out of a total of 1,600,000 employed in the building industry was not at all excessive. The vote was seconded by H. J. Adams, Chairman of the Governors of the Brixton School of Building, who congratulated D. A. G. Reid, the Principal of the School, for his initiative in arranging the evening's discussion.

DIARY

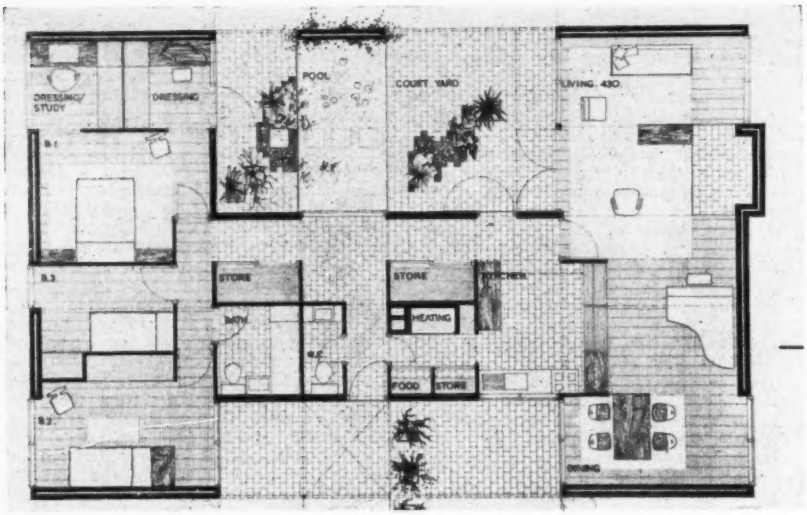
Economics of Clean Air. Lecture by Sir Hugh Beaver. Chairman: Professor Sir William Holford. At the University of London, Senate House, W.C.1. 5.30 p.m. DECEMBER 1

The Law Relating to Compensation on the Compulsory Purchase of Land. Talk by James Kekwick. At the RICS, 12, Great George Street, S.W.1. 5.30 p.m. DECEMBER 5

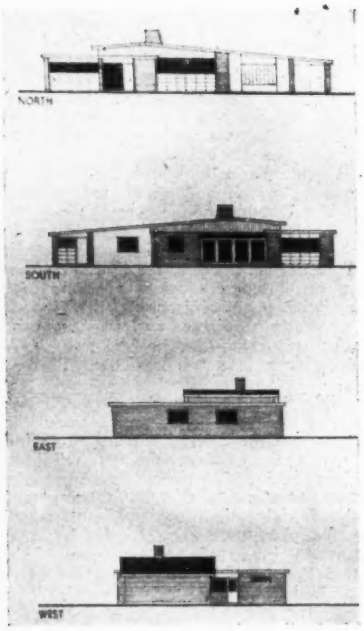
Brompton, London's Art Quarter. By H. S. Goodhart-Rendel. At 66, Portland Place, W.1. (Sponsor: RIBA). 6 p.m. DECEMBER 6

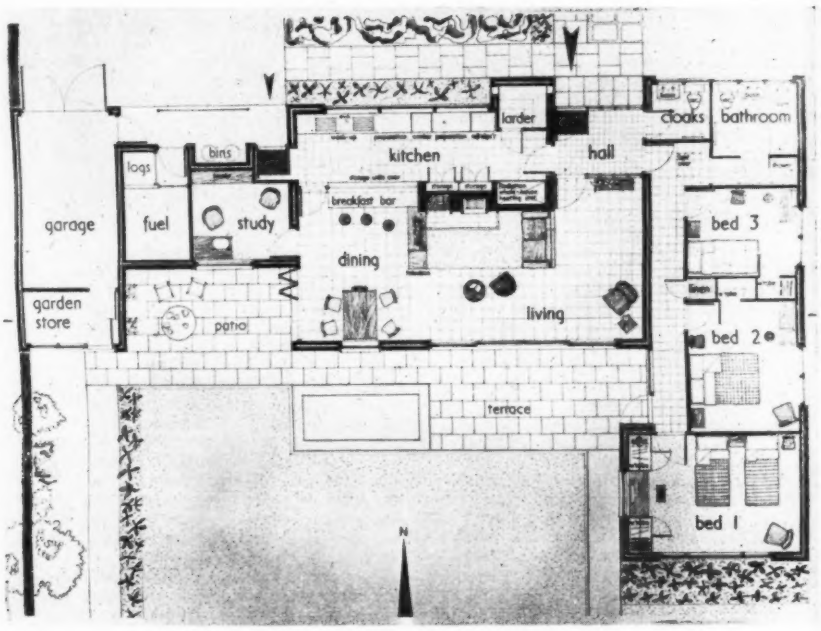
Timber for Tomorrow (*Preservation of Timber.* Film by Hicksons Timber Impregnation Co. (G.B.) Ltd. At the BC, 26, Store Street, W.C.1. 12.45 p.m. DECEMBER 7

THE PROFESSIONAL MAN'S HOUSE: WINNING DESIGNS....



On November 17 we published the first winning designs in Tretol's house competition and asked readers what they thought of Mr. Culpin's decision not to comment on the designs. We publish below some of the letters we received. On the left is a reminder of the plan of the first prize-winners, R. Towning Hill and Partners, in collaboration with Frederick Mark. On the right are elevations and plans of the design which won second prize for F. A. Sargeant. Below, the third prize-winning design, by P. J. Lord-Smith.





....AND WHAT READERS THINK

SIR,—"First Prizewinner, but why?"—a brusque title to your write-up, but mine is one of the 320 decided views which you mention in connection with Tretol's competition. By all means, let us have Mr. Culpin's reasons for making his award, thus allowing us to assess the advantages against the disadvantages.

I wonder, will Mr. Culpin, in telling us why he awarded this prize "without hesitation," also tell us that he did not hesitate over the facts that:—

1. A first bedroom has no apparent means of natural light?
2. A third bedroom, in a terraced arrangement, is also deprived of the light of day? (So, too, a "dressing/study".)
3. A second bedroom which, by virtue of glass area, is as public as the first bedroom is private?

But this is destructive criticism from an erstwhile competitor! We must have the case for the defence!

"A PROFESSIONAL MAN."

SIR,—As competitors in the above competition, any criticism of the prize-winning design would be out of place and, quite naturally, dismissed as being biased.

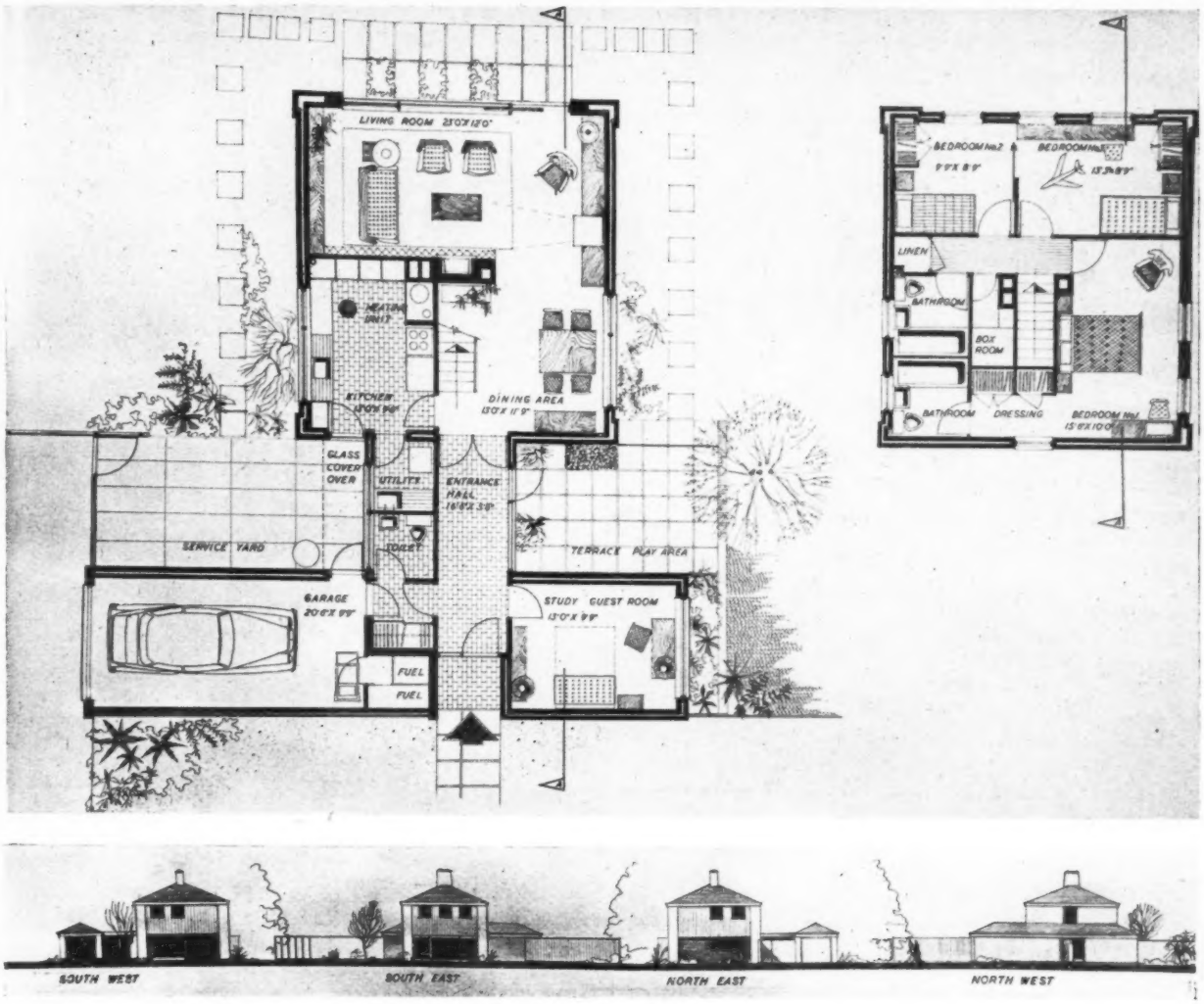
However, we would like to bring forward two points which we considered to be deciding factors and influenced our own approach to the particular design problem. To quote from the rules "... a house which is possibly a little more imaginative in conception than that following the common pattern. On the other hand, he would not be expected to want something so startling as to be certain of rejection by the Planning Authority."

From personal experience in our own locality we state with confidence that the prize-winning entry would be rejected by our local authorities on most local sites unless it was so positioned as to be divorced entirely from its domestic neighbours even though the neighbouring houses are, more often than not, examples of the pretentious vulgarity with which our land is blighted.

Surely, here was an opportunity to present to the public a development of domestic architecture having our own country's insular traditions and feelings expressed and guided along more tasteful lines? Or are we doomed to choose between the mock-Tudor-cum-Sugarcake-villa and the "international box."

R. BRIAN CLARK. (A.)
P. G. WILSON. (A.)

Hull.



SIR,—Since the day of the award in the Tretol House Competition I have been troubled by a persistent rustling noise—as of the rubbing together of the PRA's hands.

B. K. BOWMAN. (A.)

Huntingdon.

SIR,—Unless something is quickly done about that section of the RIBA responsible for the advice on conditions (and assessors), which result in a professional witch-hunt each time a competition result is announced, there will soon be no public or private bodies sufficiently altruistic to undergo the ordeal. Surely they are defeating their inviolate position and guying any professional standing we may have retained in the public eye?

Let us at least be frank among ourselves, and know what the assessor (who should be considered worthy of his appointment) has to say in particular about the varying efforts submitted. But it should be remembered that no hard and fast rules can apply to the design in this instance, as ways of living vary and no lead was given on the domestic outlook to be expected.

It is indeed unfortunate that Messrs. Tretol were not advised that the other 320 competitors would have appreciated being informed of the results before the Building Exhibition (where results were shown) was publicly opened.

ANN M. HAYES TOWNS. (A.)
KENNETH A. ROTHWELL. (A.)

London.

SIR,—The assessor's remark that he had had no hesitation in awarding first prize bodes ill for the remaining 322 designs. Surely, not all of them could have so obviously and so badly fitted a plan to a preconceived elevation, and we personally know of very few clients who would require a bedroom with no windows.

The following are the main faults noticed:—

1. *Windows.* (*a*) No windows to bedroom 1, light being obtained obliquely from dressing rooms; (*b*) Excessive windows in dressing rooms, with the subsequent lack of privacy where surely it is most needed; (*c*) Excessive windows in bedroom 2, producing a badly-placed bed and no other furniture; (*d*) Inadequate windows in bathroom and w.c.

2. *Circulation and Planning.* Circulation space excessive and badly planned. A poky entrance hall cramped by the w.c. and pantry and a long distance between the kitchen and dining space through the living area, the hatch presumably being reached over the Cooker. There are no dustbins, fuel stores, drying area or garage shewn and no access from the kitchen to the dustbin or fuel if they are added. It is presumed all tradesmen have to come to the front door.

It appears only possible to sleep four people, bedroom 2 being inadequate for two beds, due to the excessive size of windows. There is no room for further furniture in either bedroom 2 or 3.

In a small house where the three bedrooms are so cramped it is surely unnecessary to have two dressing rooms. From the drawing of the terrace treatment it appears that the unfortunate owner will have to sacrifice all the light to bedroom 3 and to the dressing/study and half the light to bedroom 2 (in this case a boon), and the two large north lights to the living room. In fact it would be difficult to find a house that lent itself less easily to a terrace treatment.

It might be suggested from the result of this competition that the length of time given to the assessor for examining the works submitted could profitably be increased. A week seems hardly long enough to consider 323 designs.

BARBARA THOMAS AND
PETER SILSBY. (A.)

London.

SIR,—I must first congratulate you on the brilliance of this weeks' issue, the Building Exhibition Preview. Your review of the Tretol competition was also of great interest to one who reckoned he had jolly well earned his ticket to Olympia. Much appreciated was the assessor's remark that there was one design of outstanding merit ruled out on grounds of cost. This must have put 319 others, besides myself, in an excellent frame of mind, each one of us being quite sure that his was the design referred to.

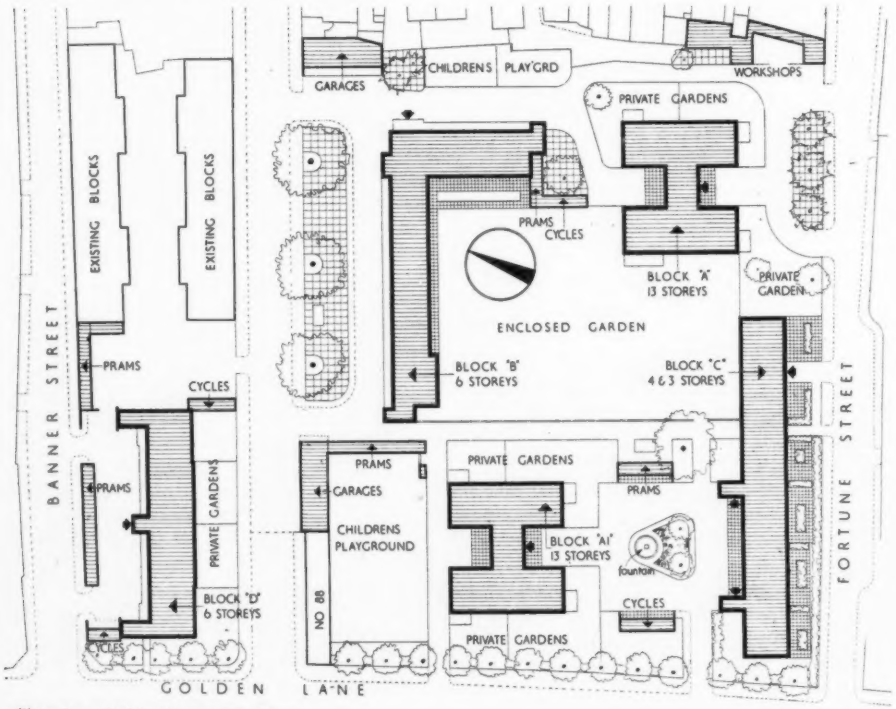
HENRY D. DAWSON. (A.)

Derby.

HOUSING FOR THE PEABODY DONATION FUND IN

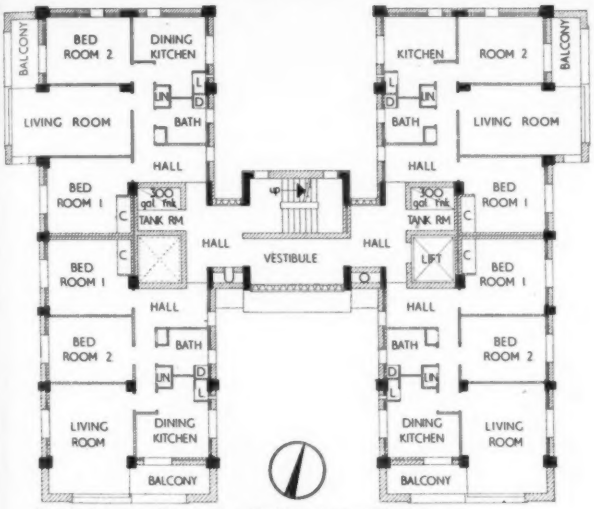


Illustrated on this page and opposite are three housing schemes for the Peabody Donation Fund, all designed by John Grey and Partner. The perspective view above shows the Roscoe Street scheme in Finsbury, seen across Golden Lane, with Block A1 on the left, Block B in the centre, Block A on the right and the gable end of Block C extreme right. Roscoe Street, which runs east and west, to the south of Banner Street, will be closed to the public, but is being retained as an estate road. The site, which has an area of 3·42 acres, was previously built over, but all buildings except three Peabody tenements (shown in outline on site plan) were destroyed during the war. A large part of the site was covered by a 17th century private burial ground, which has necessitated a careful sifting as the ground was dug over. When human remains have been discovered, they have been re-interred. The new buildings, which are



Site plan, Golden Lane, Finsbury

GOLDEN LANE AND WHITECROSS STREET, FINSBURY AND IN PIMLICO



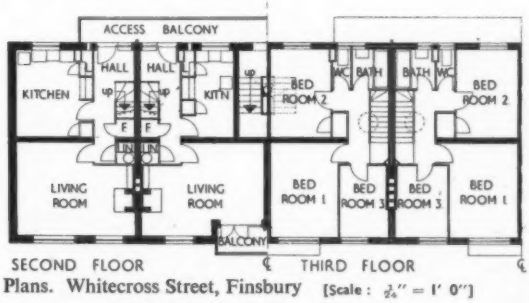
Typical upper floor plan Golden Lane, Finsbury
[Scale : $\frac{1}{16}$" = 1' 0"]

two double-bedrooms. There are two refuse chutes on each landing, each serving alternate floors. The point blocks will have a r.c. frame, brick in-filling panels and pile foundations. The cost of the estate, which will contain 192 dwellings, is estimated at £510,000. A comparison of estimated cost between one of the 13-storey blocks and block C (3 and 4-storeys) shows that Block A, with 52 flats and 182 habitable rooms, will cost £18,675 for foundations, £109,861 for superstructure (total £128,536). This is a cost per flat of £2,472, and £3 10s. per sq. ft. of habitable space. Block C, with 22 flats and 76 habitable rooms, will cost £12,370 for foundations, £37,046 for superstructure (total £49,416). This is a cost per flat of £2,246, per habitable room £650 and per sq. ft. £2 7s. The consulting engineers (structural) are R. T. James and Partners, (heating) R. W. Steele and Partners. The general contractors are Y. J. Lovell & Son Ltd. now under construction, are grouped around a central garden and there are also private gardens for some of the ground floor flats. The two point blocks, A and A1, will be 13 storeys high and are believed to be the first multi-storey blocks for which planning permission has been granted for a single staircase only. There are two lifts in each block, both large enough to carry a pram and designed to stop at alternate floors. Each flat has a living room, dining-kitchen and

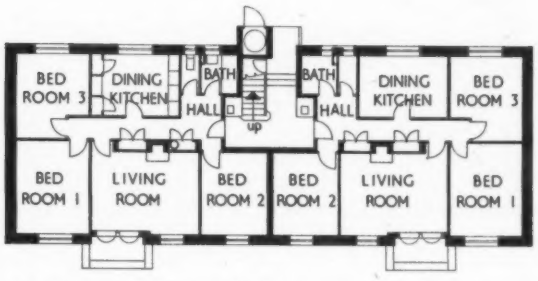


Above, a block of 16 dwellings on the Whitecross Estate, costing £38,685 (per dwelling, £2,417). General contractor, Richard Costain Ltd. Left, a block in Pimlico costing £20,000 (per flat, £2,000). General contractors, Eason & Sutton Ltd.

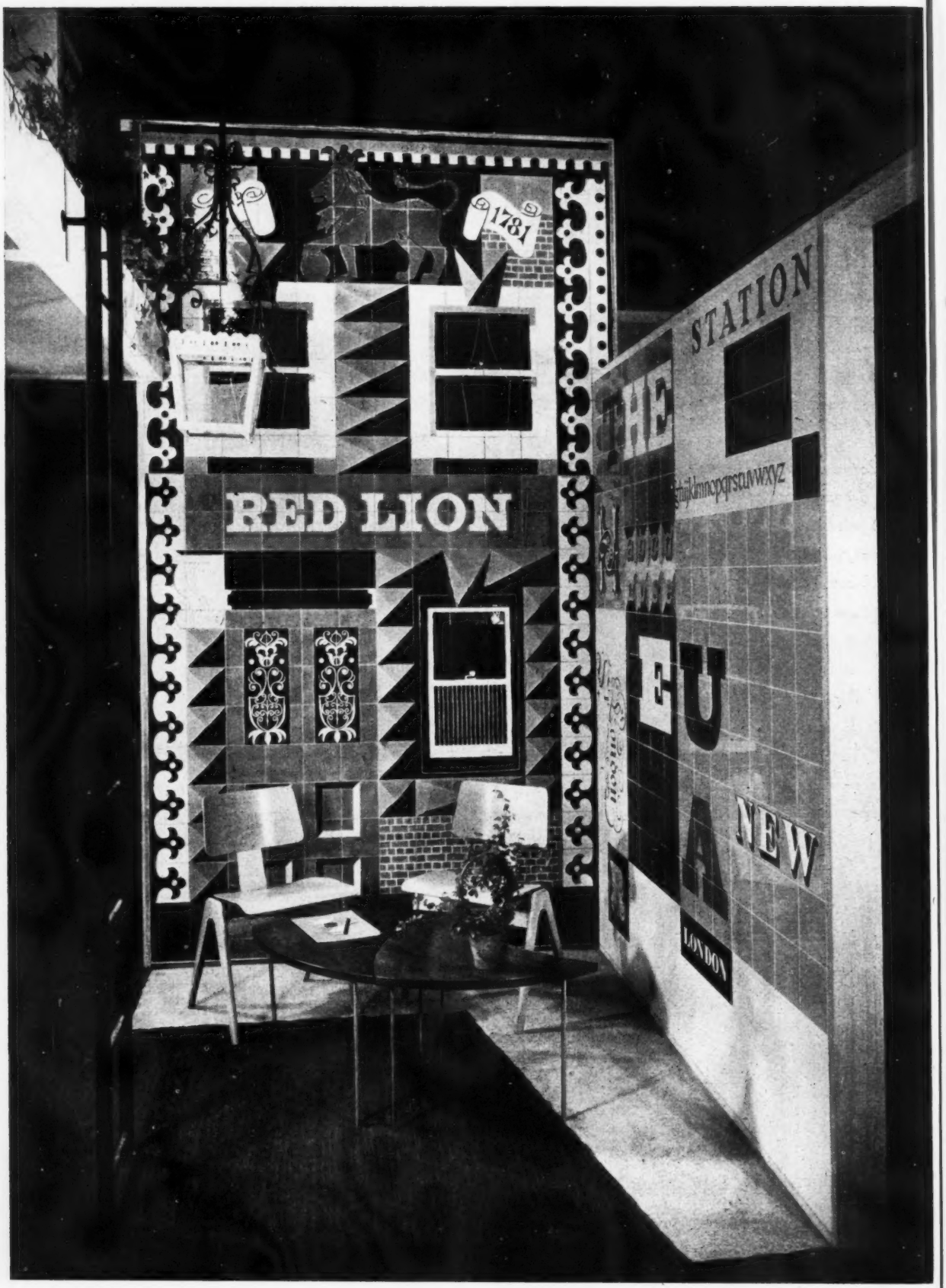




Plans. Whitecross Street, Finsbury [Scale : $\frac{1}{16}$" = 1' 0"]



Typical upper floor plan, Pimlico [Scale : $\frac{1}{16}$" = 1' 0"]



The "pub corner" on the stand of the Carter Group of Companies (designer, Gordon Cullen) showing the use of glossy and matt surface enamels on exterior type tiles.

In our issue of November 17, we gave a pre-view of this year's Building Exhibition at Olympia, which closed on November 30. This week, assisted by our Specialist Editors, we give our report. In our pre-view we presented the stands section by section, as they appeared in the Exhibition: in this report we attempt as far as possible to make our comments under subject headings. This is inevitably a somewhat arbitrary affair: government departments receive a paragraph on their own because of their inherent importance, other private stands, on which something really important for architects was said, receive the same. Then there are "special subjects" which receive a paragraph on their own because they were particularly in evidence in the Exhibition. Lastly there are the almost classical subjects like structures, heating, bricks and blocks, etc., in which readers will expect to know what is going on, even if it does not amount to much. Rightly or wrongly we confine comment to what is new. By "new" we mean anything which has cropped up since the last Building Exhibition, though we do not repeat in detail any information which has already appeared in The Industry *columns of the* JOURNAL. *This arrangement may seem unfair, because it means we can give no notice of many excellent products which carry on year after year unchanged. We hope that this will be excused as we are, after all, a journal and not a text book.*

THE BUILDING EXHIBITION: 1955

Report by the JOURNAL'S Technical Section

Changes in the Building Industry take place slowly and not all are recorded at once in the Building Exhibition. Nevertheless, if all that is new does not necessarily find its way there, the Exhibition is still a very good index of how things are going. You can tell what problems are exercising people's minds, what classes of product have "caught on." In the '53 Exhibition, to quote an example which springs to mind, curtain walling was rather a dashing novelty; this year no self-respecting metal window manufacturer dare appear without a version of it. At the same time—and this to some may seem a trifle ominous—there are an increasing number of firms offering different kinds of "mastic" to cover the joints between the curtain and the structure.

A material which has been "coming up" since '53 is aluminium. Aluminium corrugated sheeting is making a strong bid to replace galvanized iron and to justify its higher price with a better appearance and with methods of fixing which will give it a longer life and make it 100 per cent. recoverable. It is interesting to notice that the "snap-on" idea which was new in '53 has now been taken up by another firm.

Timber has been chosen as the theme of this year's exhibition, perhaps to celebrate its more ready supply. Though a limited number of admirable buildings have been constructed of timber during the past two years, it seems doubtful if it can enjoy greater use as a structural material. As a finish, however, it is coming triumphantly into its own and it seems that the possibility of thermoplastics as an alternative for flooring has become smaller.

Plastics are most in evidence in the form of melamine faced panels: there is a confusing increase in the number of firms in this field, though the older ones have the best colours. We say "most in evidence" because the most interesting uses of plastics this year are those where the product remains unseen: either as an alkyd resin used as a floor sealer or as a neoprene washer in screwed joints in drainage stacks. Another chemical product which seems to be fulfilling the great hopes placed in it is silicone: there is hardly a firm which specializes in protection against weathering which has not made use of it.

The structural event of 1953 was undoubtedly the prestressing of concrete. This has, of course, gone ahead in the two years at what, for the Building Industry, must be considered lightning speed. If it does not cut much of a figure this time, this must be because everyone concerned is too busy using it. The most characteristic development is the use of prestressed plank floors, which save weight, avoid shuttering and give a flat soffit; but the prestressing novelty of the Exhibition is certainly the prestressing of the steel framing for a roof. This is an isolated exhibit which may, of course, lead to nothing. Two signs of the times which are worth noting in steelwork are the increasing use of cold rolled sections and of steel tubes. Both of these are popular with firms interested in structural prefabrication and it is notable that scaffolding firms are being encouraged to enter the structural field on this account.

On the whole, the emphasis in the field of structures during the past two years has been not on new and daring technical solutions, but on more expeditious ways of carrying out familiar jobs. It was interesting, for instance, to notice the importance cross-wall construction has assumed in governmental eyes as *the* method of reducing housing costs: it cropped up on the DSIR stand where the LCC 11-storey flats at Wandsworth were quoted, it formed the sole topic of the MOHLG stand and it figured again on the MOW stand, where it appeared as a method of construction which lent itself particularly well to experiments in site mechanization. In fact this MOW stand, with its advocacy of greater and more intelligent use of mechanical equipment, reflected most exactly the present phase of the industry.

One last "subject" which calls for mention in any review of any Building Exhibition is heating. In 1953 the most exciting exhibit was a home-made heat pump. This year there were no less than three stands showing heat pumps of some kind or other, and two of them showed versions which are actually on the market. But on the whole the rise in the price of coal and the anti-smog campaign have had little effect, so far, on the choice of heating source: there were surprisingly few oil-fired burners on show (and fewer still for domestic use) and the general assumption is that people will go on using solid fuel at least until they get atomic energy. Efforts, therefore, seem to be mainly bent on getting better service out of it. DSIR showed how to install a fire, the solid Smokeless Fuels Federation were worried about the design of fuel stores, the most formidable exhibit was a solid fuel appliance which (with some electrical help) cooks, and heats water and space at the same time, and the most popular room heating appliance seemed to be the under-draught fire.

But it is in factory heating, where there is no purchase tax to discourage, that most changes are evident. Two years ago radiant heaters were most popular. Today the choice is veering towards forced air heaters, warmed by one or other of the fuels, such as oil or electricity, which lend themselves most readily to thermostatic control.



The Architectural Press Ltd.'s stand, designed by Dewar-Mills Associates Ltd.

MINISTRY OF HOUSING

MOHLG devoted the whole of a large stand to the subject of cross-walls, a mode of construction of which, it seems, they have become ardent champions. This is splendid, the only point at issue being whether the method chosen for spreading the cross-wall idea is the right one. This method is that of "type plans": that is, the Ministry prepare drawings of the buildings they want and persuade the local authority to make them their own. In the case of two-storey houses, these drawings show the main structure only, the trimmings being left for the locals to fit in: but in the case of maisonnettes the pattern design is virtually complete and little remains for the locals to do but to operate the contract and to find their share of the money. The excuse for this is, of course, that so little is known of cross-wall construction outside a few enlightened authorities (not everyone, alas, can have read the A.J. for March 17, 1955). Against this it must be admitted that the type plans, though competent, are not miracles of architectural skill and that even if they were it would be a pity if they were used to forestall serious thinking on the spot.

MINISTRY OF WORKS

The **Ministry of Works** stand began badly with models and drawings (both rather insufficient) of various important jobs the Ministry are building for other departments, including the experimental ship tank at Teddington for the National Physical Laboratory. Of far greater interest was a review (which fortunately took up most of the stand) of the mechanical aids now available to the builder and explanations of when and how to use them. One section dealt with batching and gave the reasons why weigh batching is preferable to volume batching: a second put in a good word for bulk storage (so sternly forced to our attention by Portasilo Ltd., in the Empire Hall), while a third gave charts showing how many men are needed to keep up with 10/7, 7/5 and 5/3½ mixers—with the suggestion that mechanical barrowing is probably better if you can run to it. There was also an excellent section on compaction, showing that a high-frequency internal vibrator can assist one man to do the work of three and explaining the use of shutter vibrators for thin sections, of beam vibrators and vibrator rollers for roads and of the more familiar power float for surfacing concrete floors anywhere.

One section was concerned with the loss of time due to frost and gave figures for a large builder and a small builder, both in the North of England, for the first three months of this year. The figures showed that the large builder lost over one third of his men's time during January and February, though it did not make it clear whether this loss was due to exceptional inability to plan his work.

Of two last exhibits, one presented a review of powered tools for site use—for cutting, chasing, fixing, screeding, brushing and stone dressing; and the other showed the pros and cons of using prestressed as against ordinary reinforced concrete for different spans and in different situations.

DSIR

It is difficult to know whether to wonder more at the importance of the content of this exhibit or at the meagreness of its presentation. Certainly there was nothing on this stand to suggest that the bare facts so barely exhibited represent the fruit of long years' work on subjects of the greatest

concern to all of us by men who are among the most highly qualified in the country. In this, DSIR made a much less effective showing than their close neighbours MOW and MOHLG. This must spring from a lack of funds, not from intention, and is further evidence of the stinginess we as a nation observe towards building research.

The 101 Colours

The first screen of the exhibit showed the colour cards which were designed at BRS to present the new range of 101 colours agreed on by the paint industry, the RIBA, BRS, BSI, and the various government departments who are concerned in building. This range was on show at the RIBA last spring, at least two manufacturers have issued swatch books incorporating it, and it is soon to be formally published by BSI in the form of a British Standard. As we are shortly publishing an article in the JOURNAL which not only describes the range but describes how it was arrived at, it will be enough to say here that its object all along has been to reconcile the limitations of paint technology with the architect's need for a colour chart which is not a mere "book to choose from" but a tool to help him get the colour effects he wants.

Not far from the colour charts were the first fruits of some experimental work the station has been doing in firing colours on to brickwork. As these have yet to pass their weathering tests, the station is becomingly cautious about their future, and all we can say in the meanwhile is that the colours are good and that the bricks themselves retain their uneveness of texture.

The other subjects treated on the stand are familiar to JOURNAL readers. Our consciences were again stirred in favour of fuel ash, a material which the industry seems unwilling to use until it can be shown to be positively advantageous. The general unwillingness to take up p.f.a. bricks suggests that even the horrifying news that the nation's weekly output of ash would fill the Grand Hall at Olympia will leave our business men unmoved; but the promised advantages of p.f.a. *aggregate* may well work a change of heart.

Advance information that the stand was going to treat the BRS work in planning and production techniques suggested that we should learn something about the work done with the LCC at Picton Street. Though there were some facts on tall blocks, it was disappointing to find that the station was still harking back to the great work done with the Norwich tower crane in 1951.

Other minor exhibits included representations of Digest 18 (revised) on how to cure a smoky chimney, and of Digest 60 on how to prevent condensation in chimneys; a report on the use of air instead of lime to give better workability in mortars and a diagram showing the new BRS ballvalve which is designed for long life with no water hammer.

STRUCTURES

The main structural attraction of the last Building Exhibition, in 1953, was the record of prestressed concrete achievements and development.

It is no doubt due to the fact that the glamour of prestressing has faded, and that it has now taken its place as just another form of construction to be used only when appropriate, that there were few big exhibits this time.

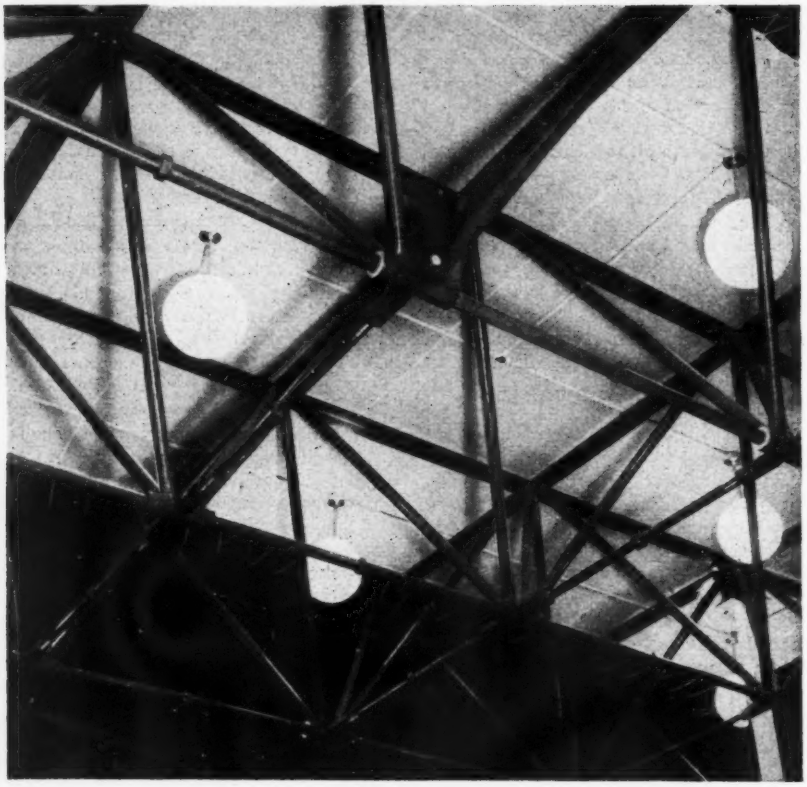
The only big exhibit was **Udall's Prestressed Concrete Ltd.,** where the Gifford-Udall method of prestressing was illustrated as applied to a multi-bay, single-storey concrete frame with prestressed concrete purlins and a wood-wool decking. This system of single-wire prestressing with a light jack was a newcomer in 1953, but has now become well established and has been employed in a great variety of structures. In fact the system opened a new field of stressing for the lightest of structures. **P.S.C. Equipment Ltd.'s** single-wire jack marketed during the year and displayed at the show should be similarly successful.

The prestressed joist is now firmly established for use with various types of pots and in situ concrete topping to provide a composite floor. The increase in types and widespread manufacture of the joists allows the floor to be used economically almost anywhere in the country. **Concrete Ltd.** chose their new prestressed planks, which can be employed in a composite floor, as the roof of their stand. Some advance has been made in the use of prestressing in multi-storey structural frames with ordinary reinforced concrete columns and also with prestressed concrete columns. One of the pioneer buildings of the former type—the Telephone Manager's Office, Kilburn—was illustrated by a model on the MOW stand.

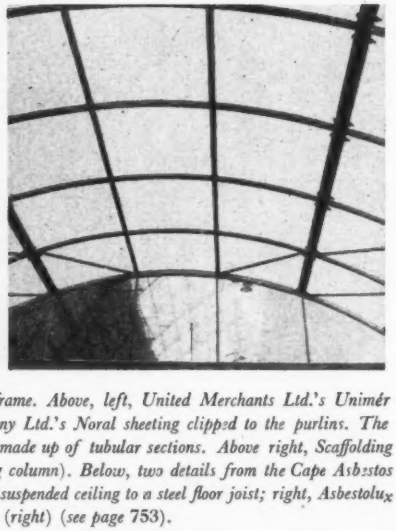
Pierhead Ltd., Celcon Ltd. and **Shockcrete Products Ltd.** all market interesting lightweight floor and roof beams, but though America has made great use of lightweight structural concrete, the lack of local aggregates and control of the wire has limited advancement in this country. Its use, however, in factory-made units is ideal. Competition for the long-span, prestressed units was provided by **H. Newsum Sons & Co. Ltd.'s** new Trofdek timber beams. At a dead weight of less than 4 lb. per sq. ft., these beams can carry a super load of 25 lb. per sq. ft. over 40 ft. span. **Universal Asbestos Manufacturing Co. Ltd.** have also introduced new units, one a hollow asbestos cement plank, the other a battened decking consisting of corrugated and flat sheets bonded together with wood battens on the underside.



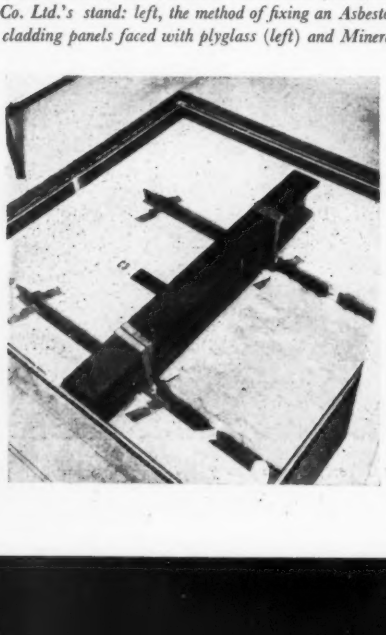
The Carter Group of Companies' stand; designer, Gordon Cullen (*see also page* 734).

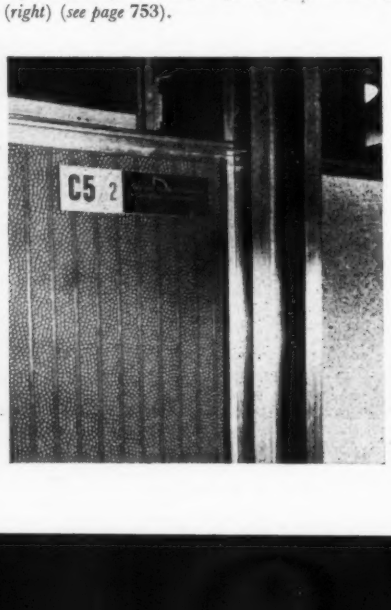






Top, Scaffolding (Great Britain) Ltd.'s tubular space frame. Above, left, United Merchants Ltd.'s Unimér prefabricated structure with Northern Aluminium Company Ltd.'s Noral sheeting clipped to the purlins. The trusses, purlins and most of the structural components are made up of tubular sections. Above right, Scaffolding (Great Britain) Ltd.'s Lattice barrel vault (see adjoining column). Below, two details from the Cape Asbestos Co. Ltd.'s stand: left, the method of fixing an Asbestolux suspended ceiling to a steel floor joist; right, Asbestolux cladding panels faced with plyglass (left) and Mineralite (right) *(see page 753).*





Turning to the general aspect of structural work, it has been interesting to note the emphasis on precast, preformed or tailor-made answers which have been provided not only for single-storey but also for concrete multi-storey buildings since the mobile tower crane became a standard feature of building sites. In this Exhibition we had in steelwork no less than five structural types in tubular, mild steel section or pressing, or re-rolled high tensile steel. In concrete, **Concrete Ltd.'s** three-storey prefabricated structure which was shown as a model in the 1953 Exhibition is now well-established. It is claimed that this type of structure can be erected, complete with floors, in little longer time than the skeleton only of a steel-framed building.

Skin structures have appeared in a variety of materials over the last ten years. While concrete shells and hipped plate (sloping slab) construction have been established for some time, the sloping lattice in steelwork is now providing a clear space roof as an alternative.

Scaffolding (Great Britain) Ltd. showed a welded tubular lattice barrel vault. There is no reason why this should not be developed to very large proportions, but it is no doubt most economical where units can be welded into shape on the ground and the whole hoisted bodily on to its supports. A fine example of wood as a shell material was provided on the **TDA** stand, where a model of the Rangoon University College of Engineering Assembly Hall was displayed. The final form of the structure is an elongated turtle-shaped dome 153 ft. by 93 ft., supported at the two narrower ends by portal space frames and along its edges by slender columns. The dome is to consist of fine laminations of teak glued and screwed together to give a total thickness of 3¾ in.

Apart from the prefabricated structures mentioned previously, there was little evidence of structural steel. However, in the last two years a number of prestressed steel structures have been evolved, stressed both by wires outside the member, e.g., the prestressed tied arch on **Sommerfeld Ltd.'s** stand, or within the depth of the member, as the 200 ft. span model aircraft hangar on that same stand. It is a little early to claim any economy in this type of construction.

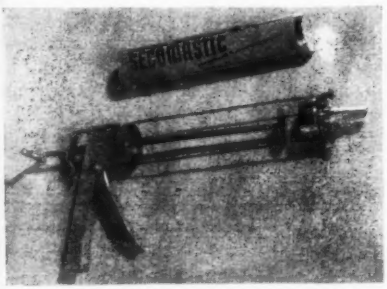
This review would not be complete without mention of **Portasilo Ltd.'s** bulk cement handling system. These yellow and black silos are now a familiar sight on many building sites and provide every advantage of bulk cement delivery. In capacities of 10-20 tons they can be accommodated on any but the most restricted sites. The Pullwey system of delivering the cement from silo to mixer ensures the correct weight of cement for each mix.

TIMBER

In the National Hall Gallery a number of stands were grouped together to form a small section devoted to timber. Strangely enough the traditional markets were not represented. Most importers know the way timber coarsens down the Baltic coast, how Archangel timber can be amongst the best in the world and how Russia now controls the best forests in the Karelian isthmus. But

the only sign from these regions was found on **Montague L. Meyer Ltd.'s** stand where yellow Siberian pine was again on show. It looked clean, unforced and remarkably free from defects, even allowing for the fact that almost every piece of wood shown at the Exhibition was hand-picked. The firm say that more may be available in 1956.

The small exhibit was rather more of a Commonwealth and Colonial affair, with Canada, Gold Coast, Nigeria and North Borneo helping out the **Federated Home Timber Associations** and the **Forest Products Research Laboratory.** The only exception was the stand of **Les Industries Francaises du Bois,** where a very interesting sliding-folding window was shown. This was the recently patented D.S. sliding casement and one can only hope some manufacturer will make it under licence here in England. On the North Borneo stand were many low-priced hardwoods with some good samples of white serayah. This wood is widely recommended as decking, being placed second only to teak. For windows, however, one might look to the higher priced deep red merantis on the Nigeria and the nearby Gold Coast stand. Hills are now making some plywood

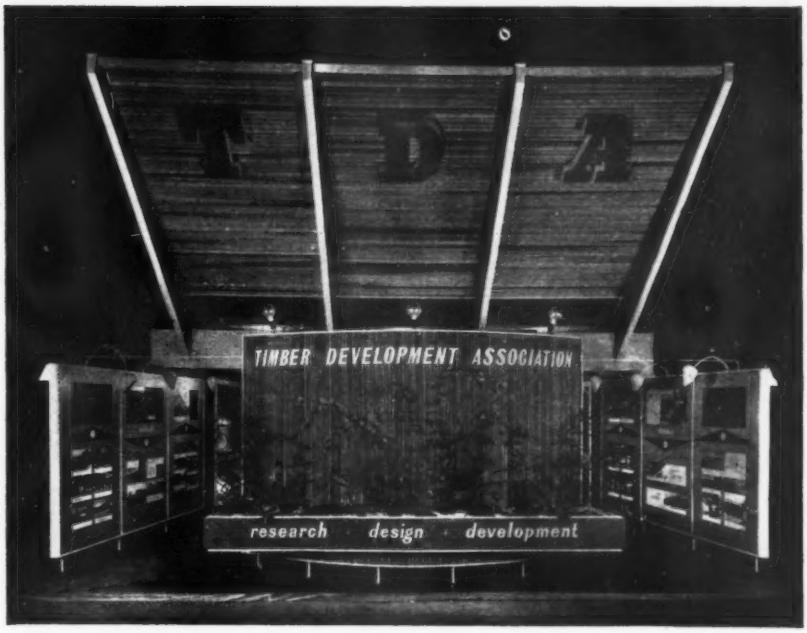


Above: The highlight of the Secomastic Ltd. stand (right) was the new skeleton Secomastic gun. This has been designed as a low-priced tool for the smaller contractor.

in the Gold Coast with a redwood rather than obeche core, thus presenting a better board at much the same price.

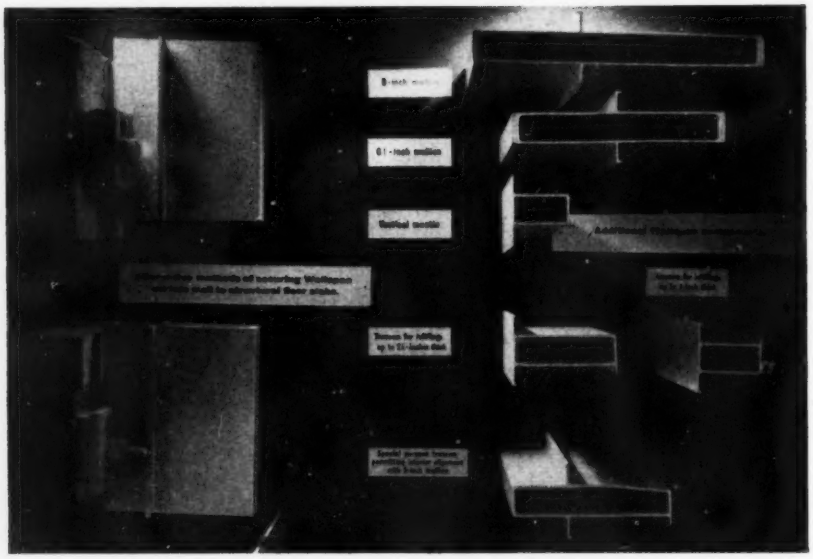
On the Canada stand, the most interesting topic was building against the cold, reminding us all of aluminium foil, and glass wool in timber studding. Next door many timber men were impressed by the strict grading of timbers shown on Forest Products Research Laboratory stand. Here the DSIR showed examples of the proposed grading of English softwoods and it bodes well for the home market if the Forestry Commission manage to find a good supply of the better grades. The grading looks every bit as competent as the Scandinavian systems.

There were several firms showing made-up joinery, all of high quality, and two of the most useful windows were found on the stands of **Stramit Boards Ltd.** and **Holcon Ltd.** On the latter was the familiar double- and single-glazed horizontal pivoted Carda windows and on the former were the Swedish-inspired Tomo windows with their elegant Fix ironmongery. (See description on page 745). Cored flush doors were standard to most timber stands, among the best being those of **Leaderflush Ltd.** Technical interest here was mainly confined to the various methods of preventing warping.





Above: Timber Development Association's stand designed by A. Roscoe-Hudson, A.R.I.B.A., and Alistair G. Smith, A.R.I.B.A. Below: Secomastic Ltd.'s stand, designed by Dewar-Mills Associates Ltd.



Above: detail from Williams & Williams Ltd.'s stand, showing typical aluminium extrusions used on Wallspan curtain walling. Below: external view of part of Williams & Williams Ltd.'s stand, showing Wallspan in use. (*See page* 741.)

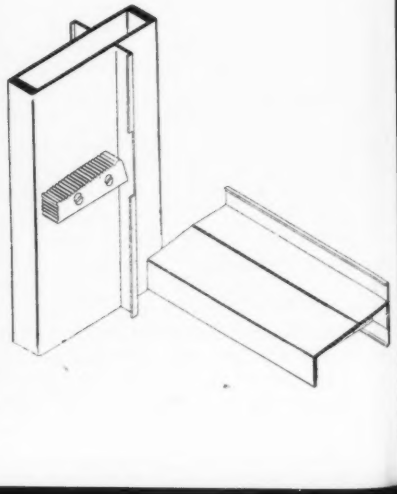


CURTAIN WALLS

At the last Building Exhibition there was one example of curtain walling: Wallspan, by Williams & Williams Ltd. This year there were at least eight. This suggests that some sections of the building industry, whatever might be said of the industry as a whole, are receptive to new ideas, and keen on developing innovations. One's only worry is that some of the manufacturers, in their anxiety not to restrict the architect to any particular proportion of window and ventilation area, leave too many pertinent details unsolved as well.

To any system of curtain walling there are obviously two major dangers, which may or may not interact, two problems of construction, and problems of thermal insulation and condensation—at the very minimum. The major dangers are obvious, thermal movement and moisture penetration. Only too often the salesmen on the stand had never considered fully the implications of the first, and their answer to the second was—mastic. The William Allen and Edward Mills duet on the subject, at last year's RIBA Conference, has obviously been neglected. The fixing problems are obvious too, but all too rarely were the magnificent exhibition stands used to demonstrate such practical points as: first, how to turn external and internal corners neatly, and second how to restrain the curtain wall at floor heights—or on traditionally-built end walls—without running into trouble over the two very different dimensional tolerances to be expected of metal work and traditional building. Most of the makers expected panels with some insulating and fireproofing qualities to be inserted, instead of glazing, but methods of fixing were often only casually considered. as was the problem of filling the gap—if only for soundproofing—between the floor slab and the inner face of the curtain wall. Some relied on a separate inner leaf wall being built to sill level to solve the problems of insulation, fireproofing and soundproofing. A minor point, but one which can injure internal finishes, is the effect of condensation on the lower transoms of tall window walls in positions such as staircases, where condensation can form over a large area. This problem is, presumably, up to the architect to solve.

Below, diagram showing joint between mullion and transom in Wallspan curtain walling. The serrated profile of the spigot helps to hold the jointing mastic in place.



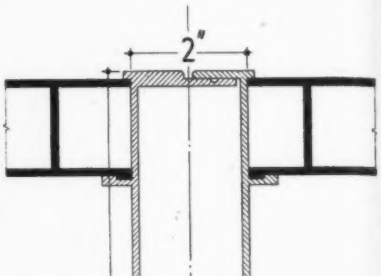


Williams and Williams Ltd.'s stand, designed by Yorke, Rosenberg and Mardall, F./F./A.R.I.B.A.

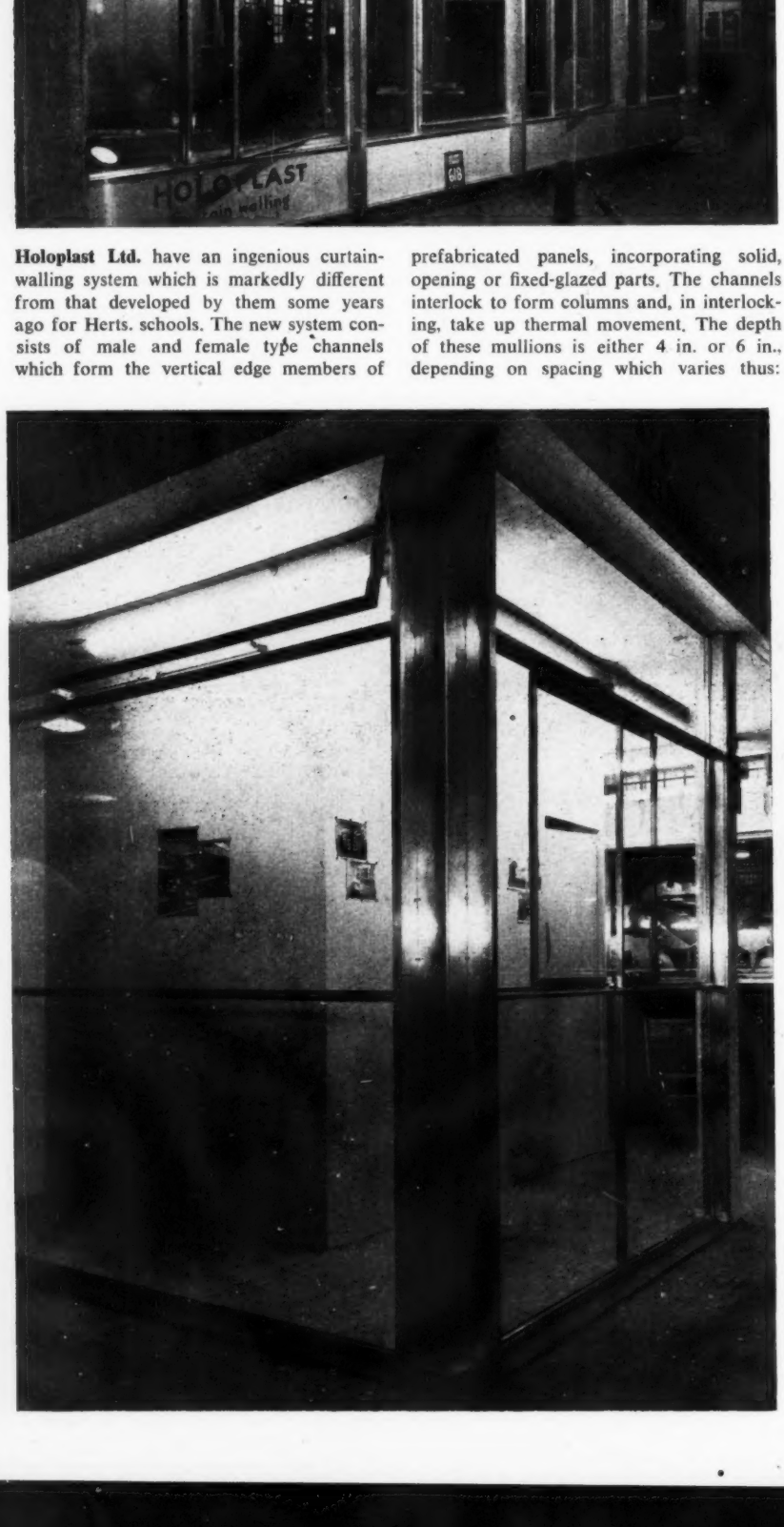
Wallspan, by **Williams & Williams Ltd.**, was the oldest of the aluminium curtain wallings on view, and the illustrations show the refinements of this system. There are three sizes of mullion available, for floor-to-floor spans of 11, 15 and 20 ft. at 3 ft. centres. Spigot joints at the top of each mullion, and where transoms join the mullion, allow thermal movement. Bars, with milled faces, projecting from the mullions allow a small amount of tolerance for fixing to floor anchors.

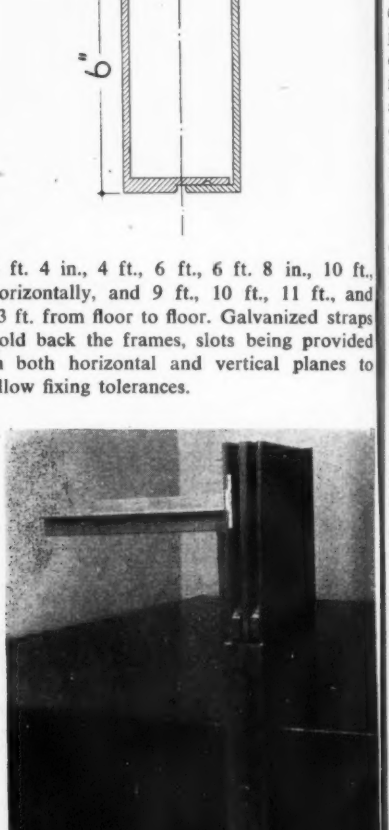


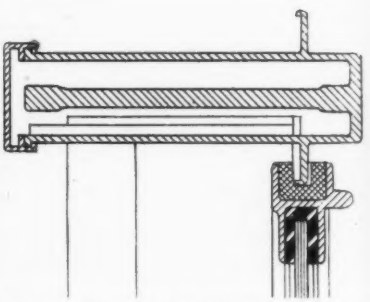
Left: external view of a range of Holoplast Ltd.'s curtain walling. Below: detail through mullion.



Holoplast Ltd. have an ingenious curtain-walling system which is markedly different from that developed by them some years ago for Herts. schools. The new system consists of male and female type channels which form the vertical edge members of prefabricated panels, incorporating solid, opening or fixed-glazed parts. The channels interlock to form columns and, in interlocking, take up thermal movement. The depth of these mullions is either 4 in. or 6 in., depending on spacing which varies thus: 3 ft. 4 in., 4 ft., 6 ft., 6 ft. 8 in., 10 ft., horizontally, and 9 ft., 10 ft., 11 ft., and 13 ft. from floor to floor. Galvanized straps hold back the frames, slots being provided in both horizontal and vertical planes to allow fixing tolerances.





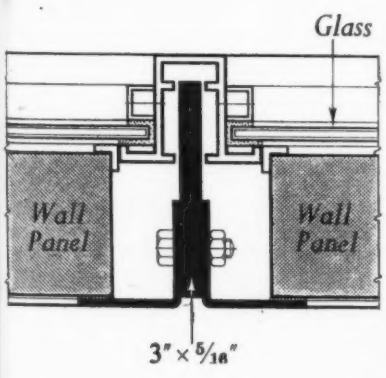


Left, external corner of Quicktho Windowall. Above top: photograph of section of Windowall mullion as seen from the outside, but before the aluminium cover strip has been added. Above, section throug Windowall mullion showing its division into a central weight-bearing column and two enclosing leaves. Moisture entering the mullion will drop down the cavity and pass out at the foot.

Quicktho (1928) Ltd. (See facing page bottom left) are part of a company which designs and builds windows and coachwork for buses. Their experience in weatherproofing the latter no doubt stands them in good stead when detailing Windowall, an aluminium-framed cladding which is being used for a secondary modern school for the Herts County Council at Welwyn Garden City. The mullions can be placed at any centres up to 80 in. for up to 11 ft. floor-to-floor heights (up to 20 ft. for special conditions). An allowance is made at all junctions at the rate of ·015 in. per foot run of extrusion for thermal expansion, and a further allowance of $\frac{1}{8}$ in. in 10 ft. is made at each junction for inaccuracy in setting out the structural frame. But no details of these allowances are shown in the firm's brochure. Any infilling can be inserted in the extrusions up to a thickness of 2 in. Very neat horizontally-sliding windows, costing about 10s. to 12s. a sq. ft., glazed, can form part of the system.

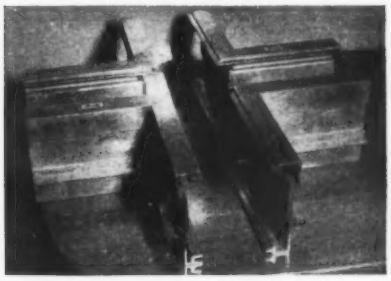
The three curtain-walling systems just mentioned are built up of aluminium extrusions only. There were four systems shown which are combinations of steel and aluminium, one of aluminium and concrete, and one of rolled steel sections. Holoplast Ltd. also produces a system of walling using precast prestressed concrete mullions. No photograph is available, but from the drawings in the brochure one cannot be certain that all possibility of moisture penetration has been completely removed.

Henry Hope & Son Ltd.'s Windogrid is being used by the LCC for a school. It consists of a galvanized steel grid, which is capped externally with extruded aluminium which in turn holds the glazing. The r.s. flats are varied to suit the spans, no particular spans are preferred—the decision is in the hands of the architect. The brochure states that "owing to the flexibility inherent in the design . . . no expansion joints are necessary where normal temperatures prevail, but special arrangements will be made for extremes—such as . . . in Canada or elsewhere."



Above, section through mullion of Henry Hope & Son Ltd.'s Windowgrid. The mullion proper is galvanized steel, the capping aluminium. Right, external view of the system in use.

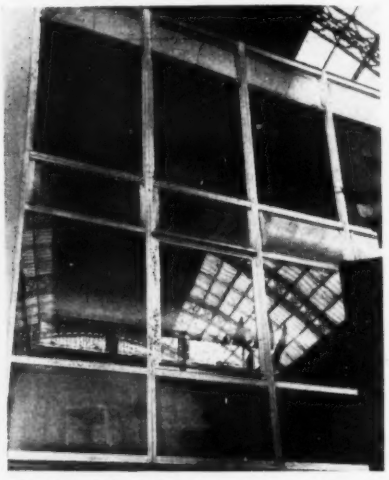


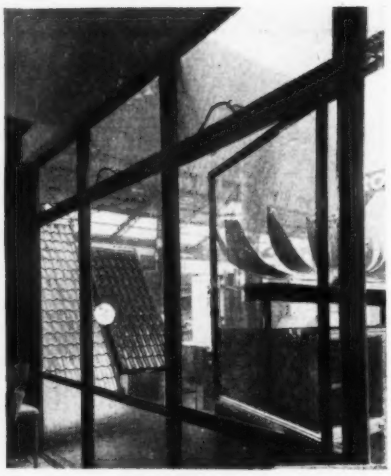


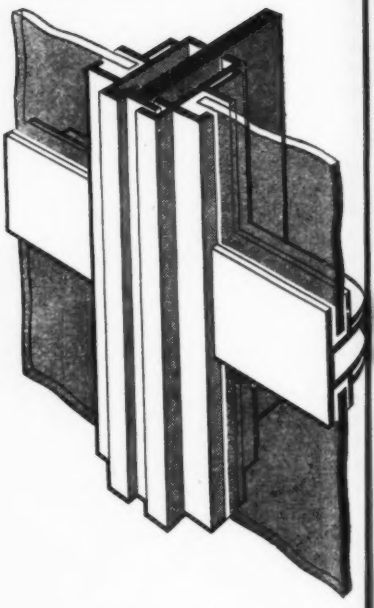
Frederick Braby & Co. Ltd. have an aluminium system, reinforced with steel members, within the cavity of the extrusion, which they claim can span up to 10 ft. horizontally and vertically. The interlocking sections can be seen in the detail photograph. The system is called Wallstruct, and can incorporate double as well as single glazing.

Above, left and right: details of Frederick Braby & Co. Ltd.'s Wallstruct curtain walling. Note that the mullions and transoms are integral with the window frames, though additional steel mullions can be run in the cavity between frames if required.





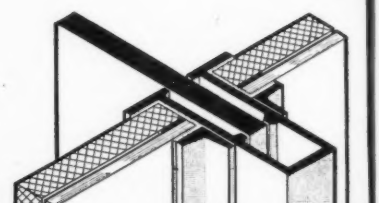




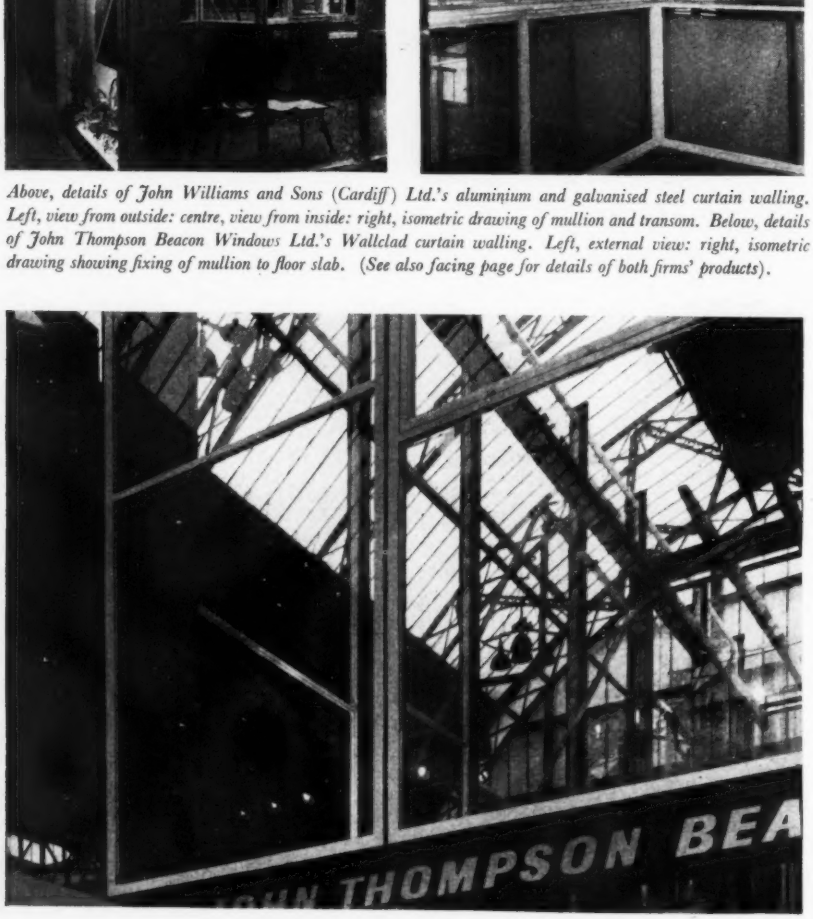
Details of Crittall Manufacturing Co. Ltd.'s Fenestra Wall. Left, view from outside: centre, view from inside: right, isometric drawing of mullion and transom. *(See also facing page).*

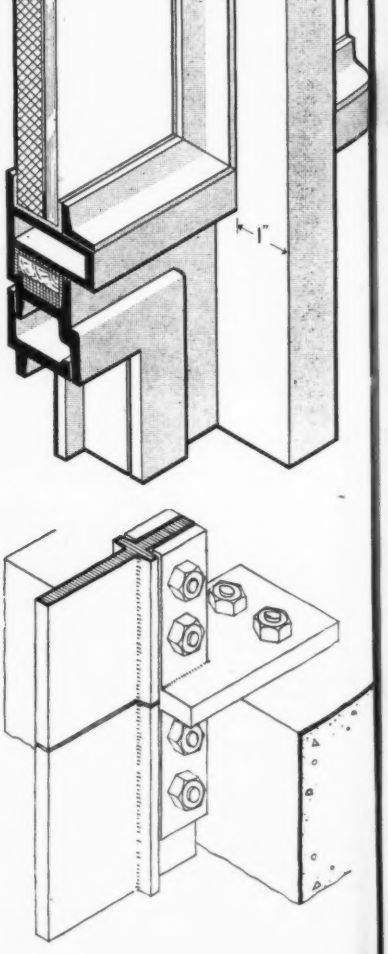






Above, details of John Williams and Sons (Cardiff) Ltd.'s aluminium and galvanised steel curtain walling. Left, view from outside: centre, view from inside: right, isometric drawing of mullion and transom. Below, details of John Thompson Beacon Windows Ltd.'s Wallclad curtain walling. Left, external view: right, isometric drawing showing fixing of mullion to floor slab. *(See also facing page for details of both firms' products).*





The Crittall Manufacturing Co. Ltd.'s Fenestra wall has steel mullions, which are clad with interlocking aluminium sections. The transoms are of aluminium only. Slotted holes in the angle cleats attached to the vertical allow for horizontal movement. Vertical movement is taken up by slotted holes in the cleats which attach the steel mullions to the floor slabs. No other tolerances for builder's inaccuracies would appear to be allowed. No special vertical or horizontal dimension would seem to be preferred. (Illustrations on facing page.)

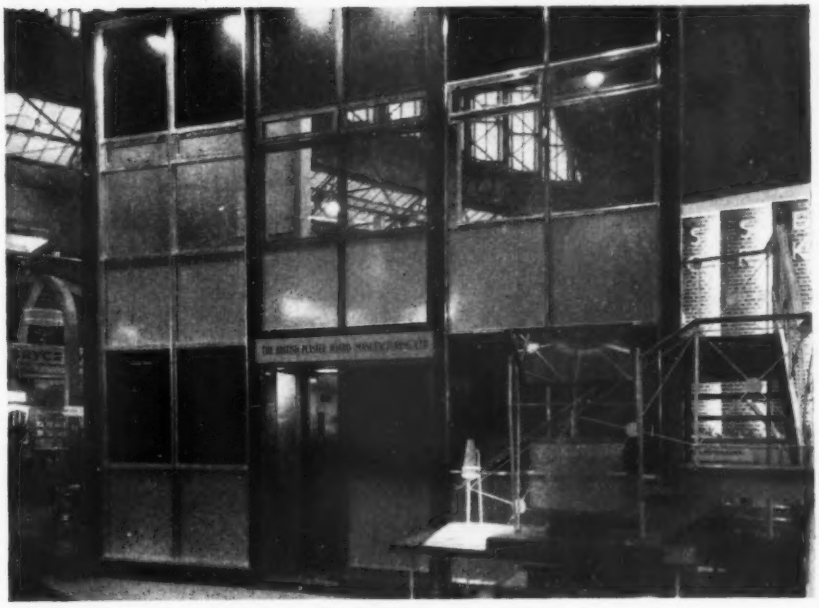
John Williams & Sons (Cardiff) Ltd. state a preference for 3 ft. 4 in. horizontally and 8 in. increments vertically for their curtain wall system. They will, however, vary from this if required. The galvanized steel mullion is clad by a U-shaped aluminium extrusion which holds the glazing. Slots in the spigots joining transoms to mullions allow for thermal movement, and mastic is run round the spigots. Iron seating brackets attach the mullions to floor slabs, and are designed "to give three-way adjustment to take care of normal building inaccuracies." No details of this are shown in the Exhibition brochure, but it was stated that $\frac{1}{2}$ in. tolerance in all directions was given. (Illustrations on facing page.)

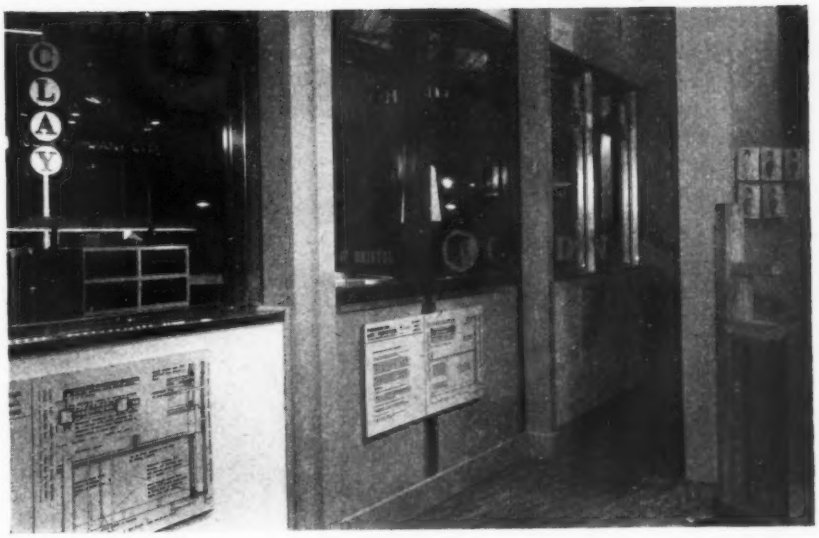
Also illustrated opposite is Wallclad, by **John Thompson Beacon Windows Ltd.**—an all-steel system. A standard cruciform rolled bar, $4\frac{1}{2}$ in. by $\frac{3}{4}$ in., can be erected as mullions at any horizontal distance from 4 ft. to 10 ft., and in vertical runs from 11 ft. to 15 ft. Standard T sections form the transoms, and standard steel glazing bar sections, with clip-on beads, form the infilling, save where solid panels are required. The makers suggest that expansion joints should be left on the cladding opposite those that normally occur in the main structure. No reference is made in the brochure to allowances for building tolerances.

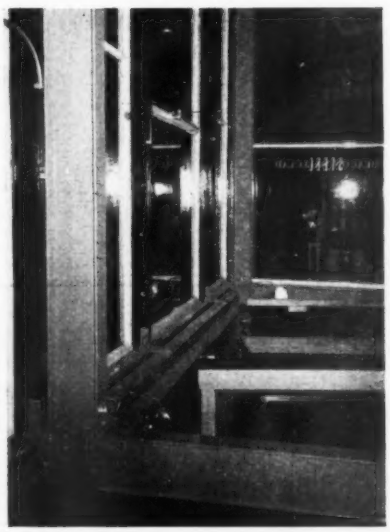
In conclusion, a brief reference should be made to the curtain walls on the **British Plaster Board (Manufacturing) Ltd.'s** stand. This showed three systems of cladding, that by Hills (West Bromwich) Ltd., a system in timber used by the LCC, and Williams & Williams Ltd.'s Wallspan. The stand (see photographs, above right) showed the external and internal appearances, the use of Paramount partitioning as a fireproof and insulating back, and, in the cut-away section, the construction of the LCC's wall.

Another type of glazed timber wall, akin to a curtain wall, was shown on the **Stramit Board Ltd.'s** stand. It consisted of various Tomo windows and frames, fitted together with glazed or solid fittings, to form storey-height units. The unit with the horizontally-hung window costs £59.

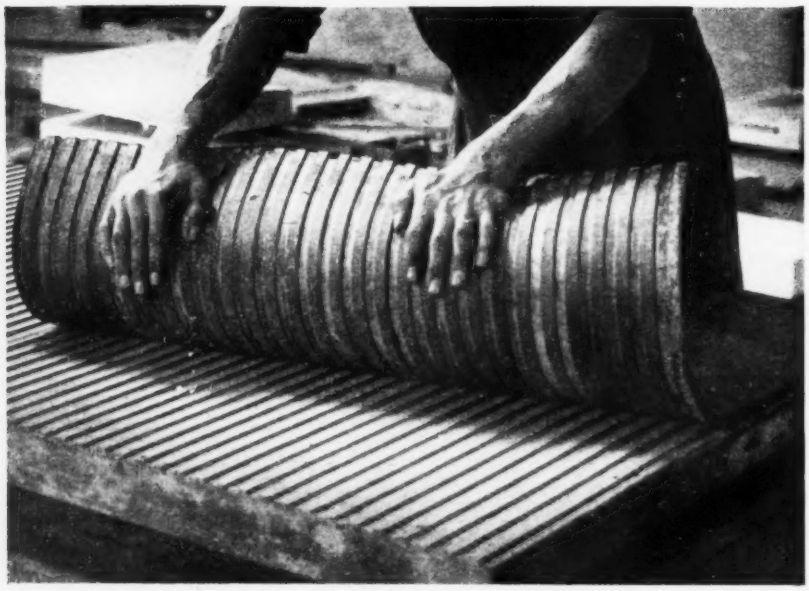
As regards the cost of curtain walls, of course no definite price could ever be given, if only because so much depends on the type of infilling used. Estimates varied from 15s. a ft. super to 25s. In no instance did a manufacturer claim to be able to produce a wall cheaper than a traditional one, but only "comparable with" traditional construction.

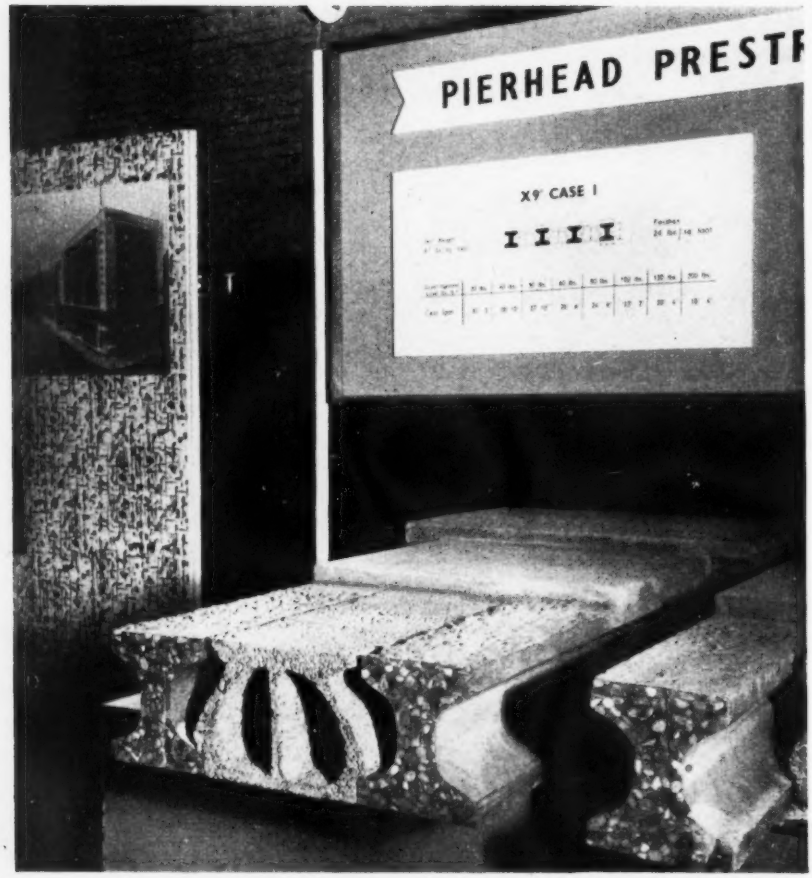






Above, top: view of British Plaster Board (Manufacturing) Ltd.'s stand, showing plaster-board panels incorporated in three different systems of curtain walling. These (reading from left to right) are Williams and Williams Ltd.'s Wallspan, a design of timber curtain walling used by the LCC Architect's Dept. and Hills (West Bromwich) Ltd.'s Hilstate curtain walling. Above, the same stand viewed from inside, the curtain wall types being in the reverse order. Left, detail of John Thompson Beacon Windows Ltd.'s stand seen from inside (see drawing and photo on facing page).





Top: ribbed rubber sheeting for patterning precast concrete slabs. See item (right) on British Rubber Development Board. Above: Pierhead Ltd.'s prestressed concrete beams with lightweight concrete pot infilling. See page 737.

BRICKS AND BLOCKS

Fundamentally the making of bricks doesn't vary much, and the most debatable points are always delivery dates, consistency of quality, colour, and the colour range itself. So with the larger companies—Eastwoods, Fisons, London Brick, Accrington—preference will be a purely personal one. However, some of the most pleasant colours were to be found on the **Sand Lime Brick Manufacturers' Association** stand, especially those which came from the Stonehenge Brick Company's yards at Leighton Buzzard. **Maidenhead Brick & Tile Co. Ltd.** brought a new tile, Keytoclad, which is a modern version of the Georgian's mathematical tile. It is an over-lapping tile to be applied to any rough walling—say concrete blocks—and its finished appearance and price are similar to an ordinary facing. On the **Sussex & Dorking United Brick Company's** stand by Lanchester and Lodge, F/FRIBA, was the familiar sign of the export market, moulded clay units suitable for sunbreakers or open screens, etc (see page 750). The biggest surprise of all was the realization of the National Coal Board's potential in this field. Visitors to the stand were probably staggered to find that the Board produced over 536 million bricks last year. In bringing coal under national ownership we also welded the many private yards into a formidable concern.

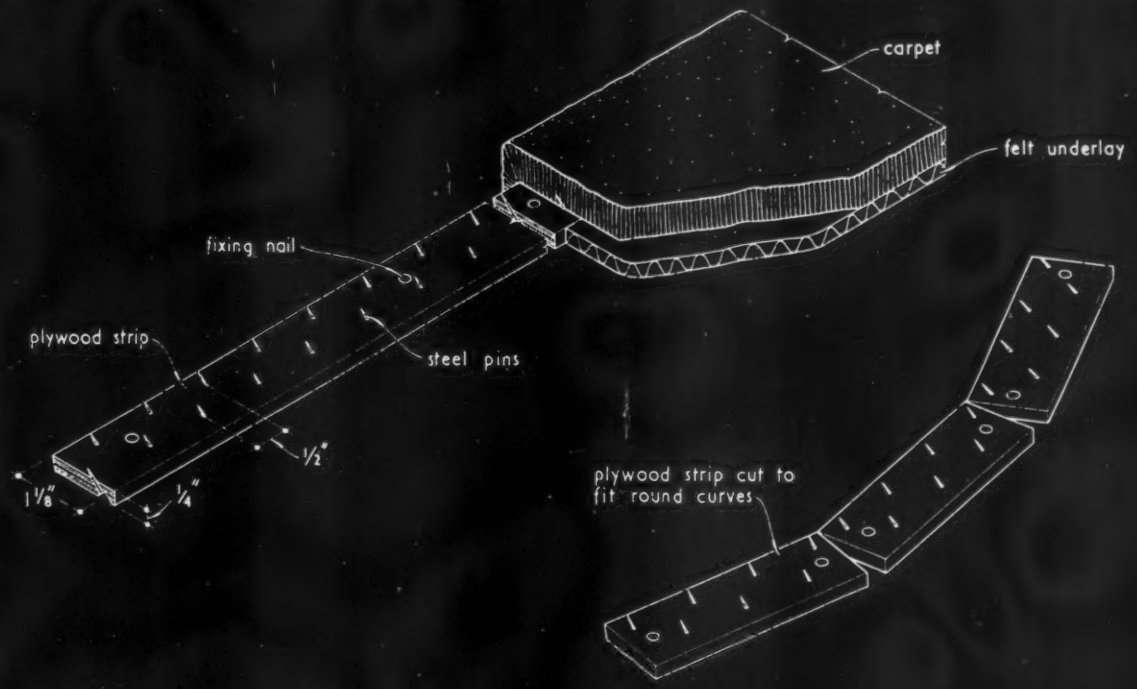
There was little new on the subject of building blocks. The Scottish firm **Tee Beam Structures (Britain) Ltd.** showed an interesting system of concrete blocks for building cavity walls which has not yet found its way to the South. **Cretablocks Ltd.** of Worcestershire claimed to have equipment capable of making blocks at the rate of 15,000 per day, and **Holcon Ltd.** showed a low cost multi-cavity concrete block. Finally, on the first floor of the Empire Hall was the attractive stand of **Selleck, Nicholls & Co. Ltd.** Their Reformite reconstructed stone blocks can be seen on Information Sheet 14.F1 (AJ, February 17, 1955). Even when transported right across the country the blocks are still a fairly economical facing material.

CONCRETE FINISHES, FLOORING AND PLASTIC SHEETING

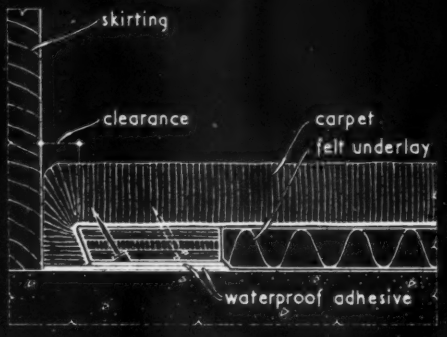
An interesting suggestion was put forward on the **British Rubber Development Board's** stand of using rubber sheeting for applying patterns to fair-faced concrete. It would be expensive to have special designs made for this purpose, but it appears that there are several patterns of sheeting to be had which have been made for other purposes and which can be made to suit this one. The sheeting illustrated on this page is manufactured as matting for heavy industrial installations. Another possible pattern, with studs, is made for the back platforms of omnibuses, and doubtless there are others. There were surprisingly few exposed aggregate finishes on show—one good one, by **John Ellis and Sons Ltd.**, we illustrate on page 755. We had hoped to see more, as these offer modern architecture an authentic chance of getting regional differences. Among renderings **Callow and Keppich Ltd.'s** Stonite offered the best range of colours, though it would be interesting to learn if all are equally fast.

The big event in flooring was unquestionably the return of wood block to challenge the large number of plastic tiles and composition floors. **Calder Ltd.** showed Alufloor, a thin aluminium foil-backed block floor. The blocks are not moulded, tongued or grooved, and arrive in 18 × 18 in. squares held together by foil backing. These can be laid straight on to a concrete sub-floor. A sample of superb Canadian Maple dowelled block flooring was shown on the **Acme Flooring & Paving Co.'s** stand, but one fears it may again disappear under the counter owing to hard currency problems.

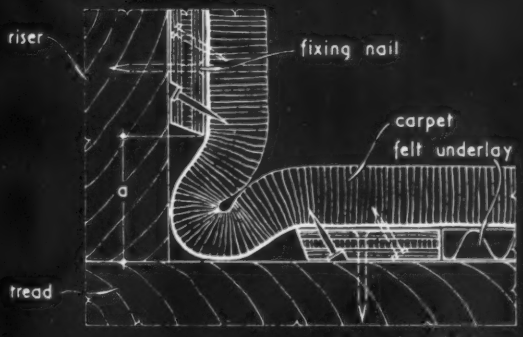
The Architects' Journal Library of Information Sheets 547. Editor: Cotterell Butler, A.R.I.B.A.



ISOMETRIC SKETCHES OF CARPET FIXING.

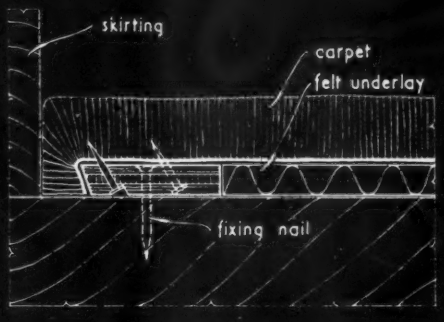


TO CONCRETE.

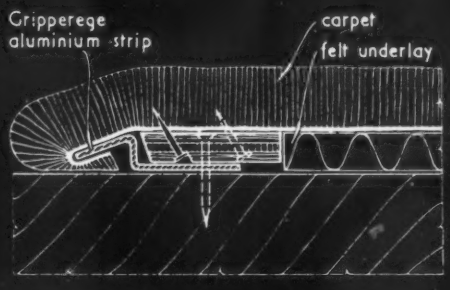


FIXING TO STAIRS.

a = twice thickness of carpet



TO TIMBER.



WITH GRIPPEREGE

FIXING DETAILS.

·SMOOTHEDGE· CARPET FIXING. Manufacturer : Smoothedge Ltd.

26.J10 ·SMOOTHEDGE· CARPET FIXING

This Sheet describes Smoothedge carpet fixing, which provides a neat, invisible method of securing fitted carpets to floors and stairs. It can be used for straight or curved edges with equal facility.

Description

Smoothedge consists of strips of exterior-grade plywood ¼ in. thick and 1⅛ in. wide with two staggered rows of zinc-plated steel pins protruding upwards at an angle of 60°. The pins are spaced at ½-in. intervals. The strip is secured to the floor with nails, (or, in the case of concrete, adhesive or concrete nails) with the pins pointing towards the wall or surround. When the edge of the carpet is pressed over the pins it is firmly held in position. Pre-nailed Smoothedge is available for use where nail-fixing is required and Standard (un-nailed) for use with adhesive or concrete nails. The outer edge of the strip may be bevelled as shown in the drawings on the face of the Sheet.

Lengths

The strips are available in lengths of 4 ft. 0 in., or 5 in. for use on concrete.

Fixing

The Smoothedge strips should be placed at a distance from the wall or upstand slightly less than the thickness of the carpet. Where curves are encountered the strips should be cut into short lengths to fit round the curve, as shown in the isometric sketch on the upper face of the Sheet. With standard strips 1 to 1½-in. flat-headed nails should be used and they should be placed at 5 to 7 in. centres, slightly nearer to the wall than the centre of the strip: a guide line is provided for this. Short lengths should always be nailed at both ends.

Where the strips are to be applied to concrete, terrazzo, etc., they should be fixed with a waterproof cement: the manufacturer recommends E.C.847, made by the Minnesota Mining and Mfg. Co. Ltd. Standard Smoothedge should be used and on concrete subfloors it should be cut into 6-in. lengths to compensate for inequalities in the surface. The floor surface should be free from dirt and grease and with non-porous surfaces like terrazzo or marble it is recommended that they be washed with a solution of hydrochloric acid and dried before the strips are applied. The strips should be worked into the adhesive so that any excess is squeezed out on the edge farthest from the wall. On soft concrete or asphalt tiles, concrete nails may be used for fixing, but nails should not be used where a radiant heating system is bedded in the floor. The manufacturer also recommends drilling and plugging.

Gripperege: Where a finished edge to the carpet is required, as at hearths, doorways, etc., Gripperege aluminium strip may be fixed at the same time as the Smoothedge. It is of Z-shaped section, the top flange being bent down after the edge of the carpet has been tucked round it (see drawing on lower face of Sheet).

Stair carpeting: Stairs can be carpeted without the use of rods or clips by the method shown in the drawing on the lower face of the Sheet. The Smoothedge strips are placed at a distance of twice the thickness of the carpet from the tread and riser respectively.

Further Information

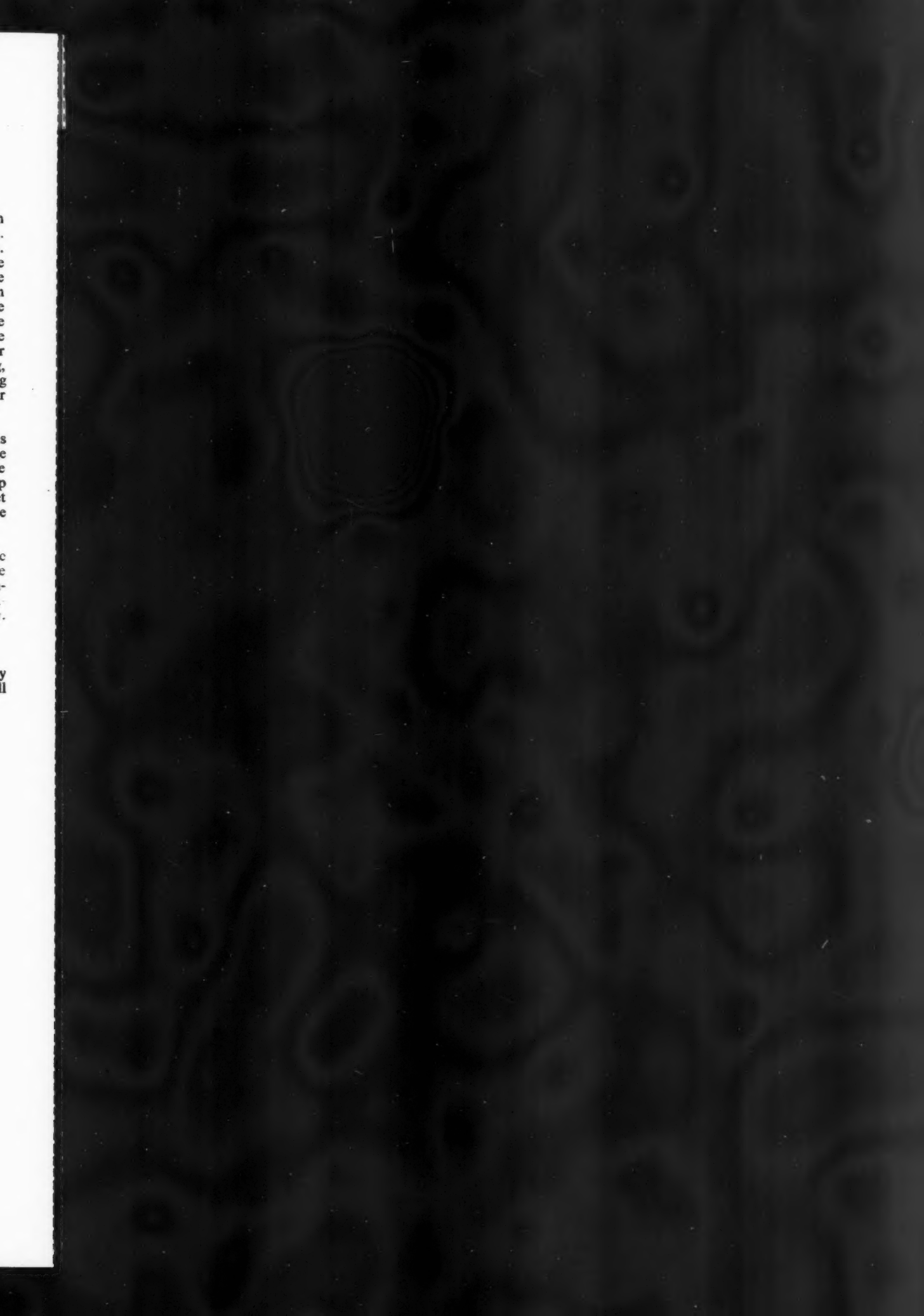
The manufacturer maintains a technical advisory department which is available to give advice on all aspects of this subject.

Compiled from information supplied by:

Smoothedge, Limited.

Address : 4, Wright's Lane, London, W.8.
Telephone : Western 9894/5.

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Editor: Cotterell Butler, A.R.I.B.A.



BUILDING BOARD | GENERAL DATA

The Architects' Journal Library of Information Sheets 548. Editor: Cotterell Butler, A.R.I.B.A.

TRADE NAME	DESCRIPTION AND APPLICATIONS		THICKN'SS	APPROX. WEIGHT / SQ. FT.	STANDARD SIZES
Royal hardboard: standard quality	long, tough wood fibres made into hard, homogeneous sheets of great strength smooth, durable face. for internal use: furniture and fittings, panelling		1/8"	0·75 lb.	4'-0" x 12'-0", 10'-0", 9'-0", 8'-0", 6'-0", also cut from 5'-3" x 18'-0"
			3/16"	1·0625 lb.	4'-0" x 12'-0", 10'-0", 9'-0", 8'-0", 6'-0"
Royal hardboard: standard quality, door panels	for flush doors		1/8"	0·75 lb.	specially cut to door manufacturers' requirements e.g. 6'-8", 6'-6" x 2'-8½", 2'-8", 2'-6", 2'-5½", 2'-2½", 1'-11½": 6'-6" x 5'-3" etc.
Royal oil-tempered hardboard	long, tough wood fibres made into a homogeneous sheet, tempered by a special process and rendered highly water-resistant, stronger and harder than standard quality for floor finishes and all external work: concrete form lining: caravans and body building		1/8"	0·75 lb.	4'-0" x 12'-0", 10'-0", 9'-0", 8'-0", 6'-0"
			3/16"	1·0625 lb.	
Royal perforated hardboard	type A: holes at ½" centres	available in standard and oil-tempered boards. for interior decoration, 'pegboard' shopfitting display, vent covers, surfacing for acoustic materials holes 3/16" dia. punched in rows parallel to board edges	1/8"	0·75 lb.	4'-0" x 12'-0", 10'-0", 9'-0", 8'-0", 6'-0", 2'-0"
	type B: holes at ¾" centres				
	type C: holes at 1" centres		3/16"	1·0625 lb.	

ROYAL HARDBOARDS: RANGE, SIZES AND TYPICAL APPLICATIONS.

Compiled from information supplied by Spencer Lock and Company Ltd. for Aktiebolaget Statens Skogsindustrier.

15.B3 ROYAL HARDBOARD: RANGE, SIZES, PROPERTIES AND TYPICAL APPLICATIONS

This Sheet describes the general properties of Royal hardboards. The table on the face gives a brief description of the range, standard sizes available and the general applications for each type of board. The following notes give further details of their properties.

Description

Royal hardboard, standard quality: The face of the boards is hard and smooth and the reverse has the markings of the wire mesh screens on which the boards are formed. They may, if required, be proofed in manufacture against attack by destructive insects.

Royal oil-tempered hardboard: This board has an extra hard surface with a fine finish. The reverse side has the markings previously described.

Royal perforated hardboard : This is available as follows :

Type	Centres of perforations	Margin round edges	Surface area removed(approx.)
A	½ in.	¼ in.	11 per cent.
B	¾ in. (20 mm. approx.)	⅜ in.	5 per cent.
C	1 in.	½ in.	2·75 per cent.

The close texture of Royal hardboard makes it possible to punch clean holes, which are an asset where the board surface is to be painted. The density and strength of the board also ensures that the holes retain their shape when used for " pegboard " display work. Type A may be used to give a hard, durable facing to acoustically-absorbent materials as, having 11 per cent. of the surface area removed by perforation, it does not impede the passage of sound in the lower and medium frequency ranges.

Properties

The figures given below are for standard quality and oil-tempered hardboards.

Property	Royal standard quality hardboard	Royal oil-tempered hardboard
Density, lb./cu. ft. ..	62·1 to 65·0	67 to 70
Modulus of rupture, lb./sq. in.	8,000 to 9,300	11,600 to 12,700
Tensile strength, lb./sq. in.	4,600 to 5,400	5,700 to 6,700

Water resistance: Royal hardboard does not disintegrate when in constant contact with moisture and on drying out the boards regain a high percentage of their original strength.

Water immersion tests show that after being in water at 20° C. for 72 hours the standard boards, on being dried, regain 85 per cent. of their original tensile strength and modulus of rupture. The oil-tempered boards, subjected to the same test, regain 90 per cent. and 95 per cent. of their tensile strength and modulus of rupture respectively.

Fire-Retardant Treatments

Tests, as described in BS. 476 : 1953, for classifying a material according to its surface spread of flame, were carried out by the Department of Scientific and Industrial Research and the Fire Offices' Joint Fire Research Organization on samples of Royal hardboard treated by the following methods, names and addresses of proprietors of which are given in each case:

Impregnated by Ignicide process: Royal hardboard, standard quality was placed in Class I, surfaces of very low flame spread.
(Stanley Smith & Co., Worple Road, Isleworth, Middlesex; telephone, Hounslow 3406).

Impregnated by Oxylene process: Royal hardboard, standard quality was placed in Class II, surfaces of low flame spread.
(The Timber Fire-proofing Co. Ltd., 13A, Old Burlington Street, London, W.1; telephone, Grosvenor 6421.)

Surface coated by Oxylene-Boram coating: Royal hardboard, standard quality was placed in Class I, surfaces of very low flame spread.
(The Timber Fire-proofing Co. Ltd.)

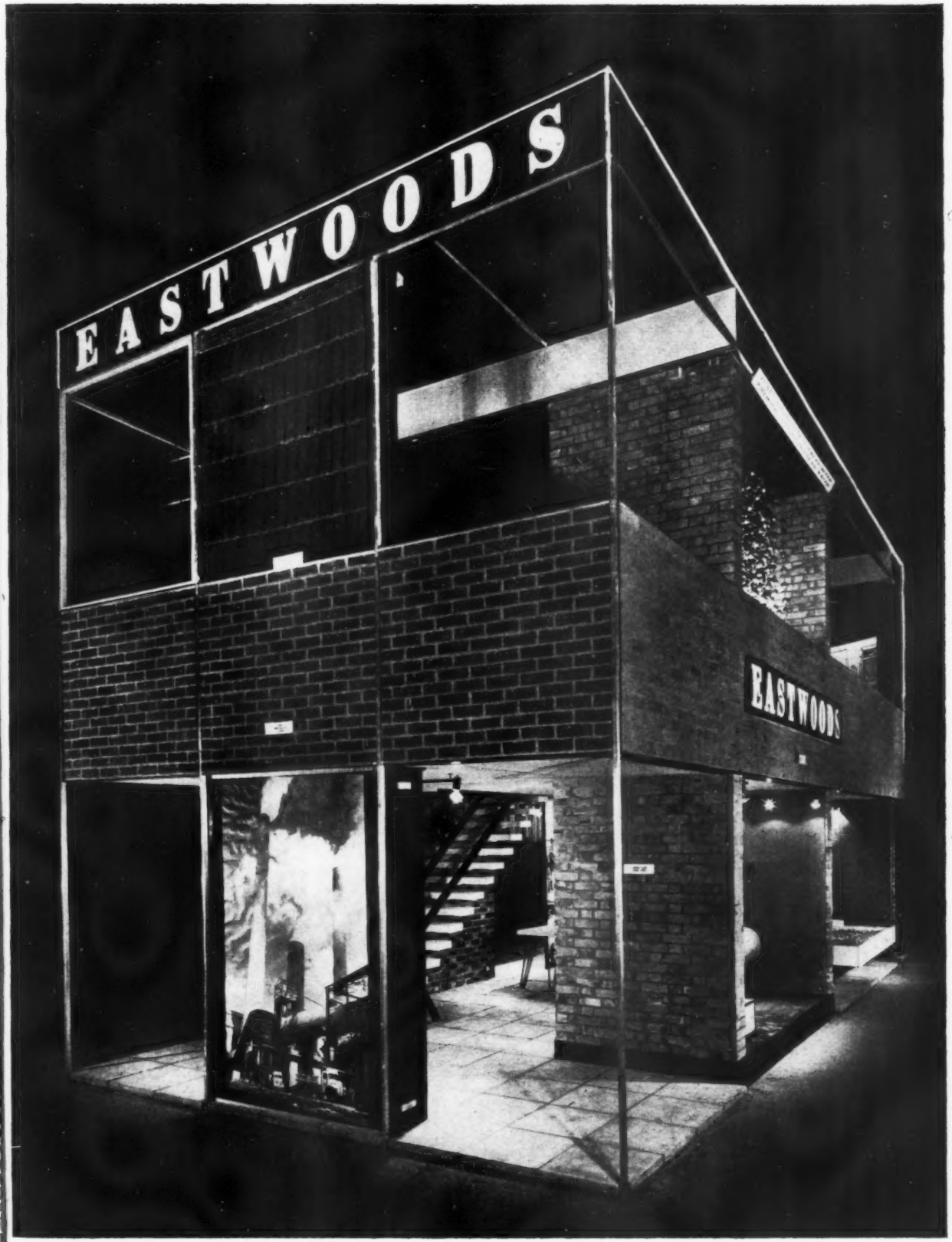
Surface coated by Albi-R fire-retardant coating and Albi-Clear TBP fire-retardant coating: Royal hardboard, standard quality was placed in Class I, surfaces of very low flame spread.
(Albi-Willesden Ltd., 6, De Vere Gardens, London W.8; telephone, Western 7472.)

Copies of the relative F.R.O.S.I. reports are available from the proprietors of the processes at the addresses given, or from Spencer Lock and Company Ltd.

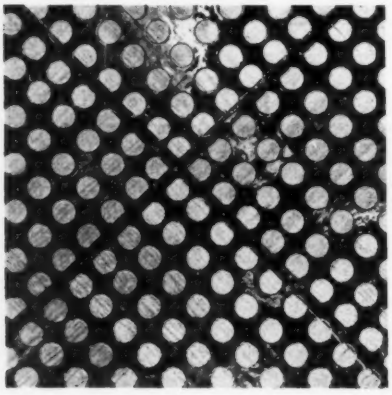
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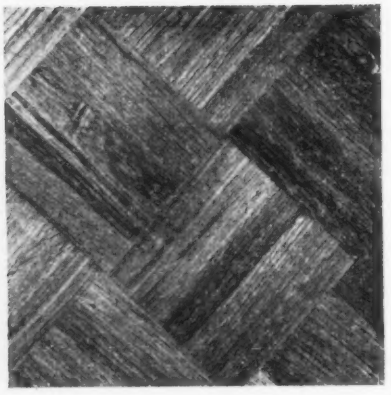
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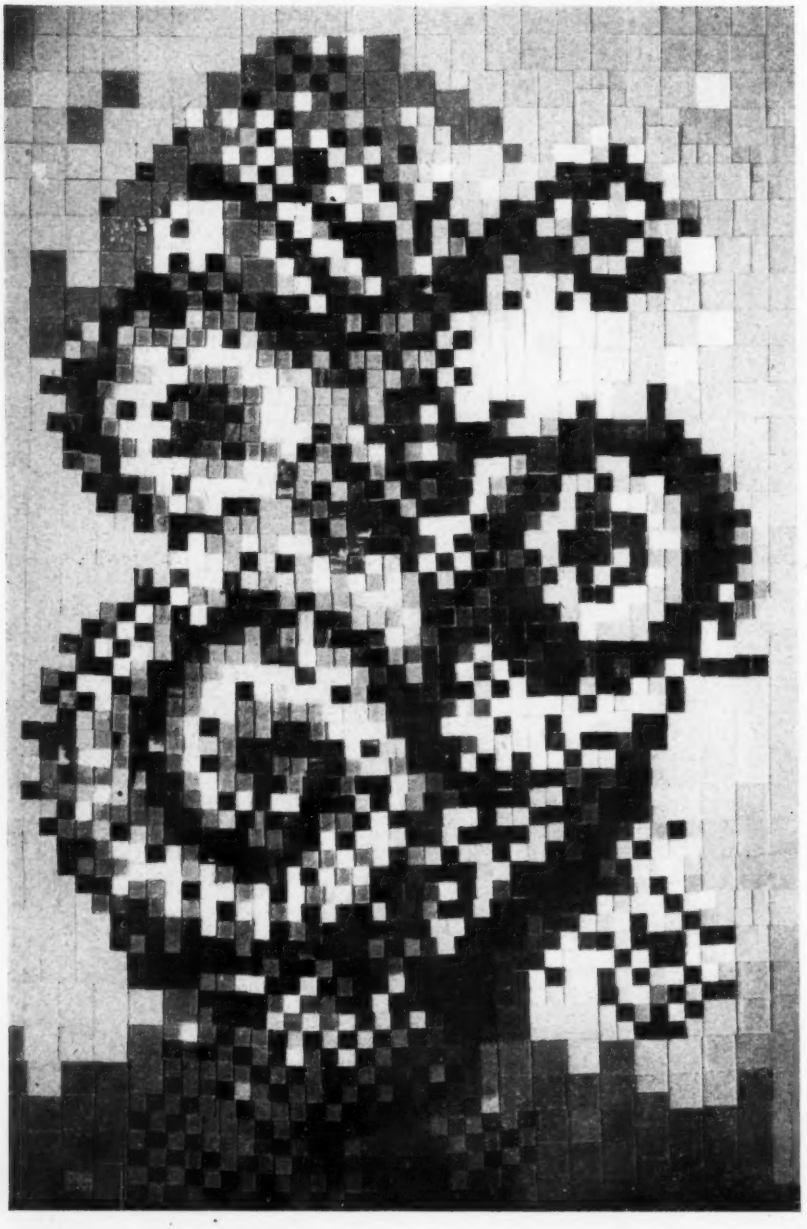
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Eastwoods Ltd.'s stand, designed by Stillman and Eastwick-Field, A/A.R.I.B.A.







Top: left, underside and right, face of Calders Ltd.'s Alufloor in oak *(see page 746)*. *Above: glass mosaic, designed by Humphrey Spender, on Chance Brothers Ltd.'s stand which was designed by Lady Casson, A.R.I.B.A.* *(see notes and photograph on page 749)*.

Judging by the plastic and composition floor tiles, the public still day-dreams of marble and if-we-can't-have-marble-then-let's-make-plastic-look-like-it. A few firms are, however, working hard to introduce some good plain colours, as for example **Michael Nairn & Co. Ltd.,** who had eleven matching coloured plain tiles very well displayed, and **Armstrong Cork Co. Ltd.** who will die-cut tiles to any design. Asphalt floors were shown by the **Limmer & Trinidad Lake Asphalt Company,** who have also managed to produce a "marbled colourphalt." Also on this stand was a good range of coloured linoleums.

Plastic-surfaced hardboards were very much in evidence and many firms have taken to a tiled-patterned plastic-surfaced board—again presumably because there is a demand for such a decoration. **Laconite Ltd.** did not show at the last two Exhibitions, and this year had a coloured plastic insulating board for backing glass sections in curtain walling. The firm can put almost any coloured plastic on almost any board. The same service is claimed by **North British Plastics Ltd.,** who put a plastic surface on an aluminium sheet giving rise to endless possibilities in curved details.

Lastly, **Thomas De La Rue & Co. Ltd.,** first in the field with Formica, showed post-formed Formica. This service is carried out by recognized sub-contractors who will mould Formica to any profile. As a suggestion of its use there was a moulded Formica section made up as a draining board and splash back. Following on, there was the firm who found their product used for purposes other than those originally intended, **The Expanded Metal Co. Ltd.,** whose reinforcement was used as decoration. Complaints were then made that the new finish was pleasant but too sharp, so Expanded Metal have obligingly given us a flattened and in some cases smoothed Expamet reinforcement with a variety of uses from flower boxes to stack chairs.

Pilkington Bros. Ltd.'s stand was usually the centre of a throng looking at an excellent model by John Thorpe of the Jellicoe-Mills project for Soho in 2000. Upstairs the firm had Muroglass, the latest method of applying coloured cladding to a building. Quarter inch glass which may be Georgian wired or rough cast has a film of vitreous enamel fired to the back and is marketed as an infilling panel for curtain walling. Pilkingtons also point out that Insulight double-glazing panels are now made with lead not copper spacers and maximum sizes are now 72 in. × 120 in. Recent contracts are shown, including the replacing of the black vitrolite lining in the Mersey Tunnel with cream vitrolite.

The most expensive finish in this section was the imported Saivo Glass Mosaic. Used extensively in Italy, and imported by **A. Elder Reed & Co. Ltd.,** it must remain a high-priced luxury, much as one would like to see more of it.

PAINTS, PRESERVATIVES AND ADHESIVES

This year the 101 colours designed by BRS, in conjunction with the RIBA, trade associa-

tions and government departments, are beginning to appear in the manufacturers' repertoire of emulsion, gloss and enamel paints, **T. & W. Farmiloe Ltd.**, the makers of Nine Elms Paints, have already produced a splendid swatch book of the 101 colours. They also showed a power-driven paint roller which should cut down costs on paint contracts. **Jenson & Nicholson Ltd.** had their well-known colorizer system on display, showing how the paint is supplied in a base colour—white—and mixed to the required tint with tubes of pigment. **International Paints Ltd.** brought out a new epoxide based paint, "Group 37," with a diamond-hard finish hitherto obtainable only with stoving enamels, and **Blundell Spence & Co. Ltd.** had a new primer-sealer manufactured to overcome the porosity of such surfaces as new plaster, brickwork, asbestos sheeting and building boards.

To pass to the subject of wood preservatives, **Hickson's Timber Impregnation Co. (G.B.) Ltd.** showed Tanalith, a new non-staining water-borne preservative. In these days of ultra-light joinery and exposed woodwork, Tanalith impregnation at about £11 per standard looks like a reasonable precaution when specifying. In the same field **Silexine Paint Ltd.** brought a new product to the Exhibition: Xylamon, which already enjoys a considerable reputation on the continent as a timber preservative, and **Protim Ltd.** described and illustrated how their Protim service has been built up to deal with timber defects such as dry rot and woodworm.

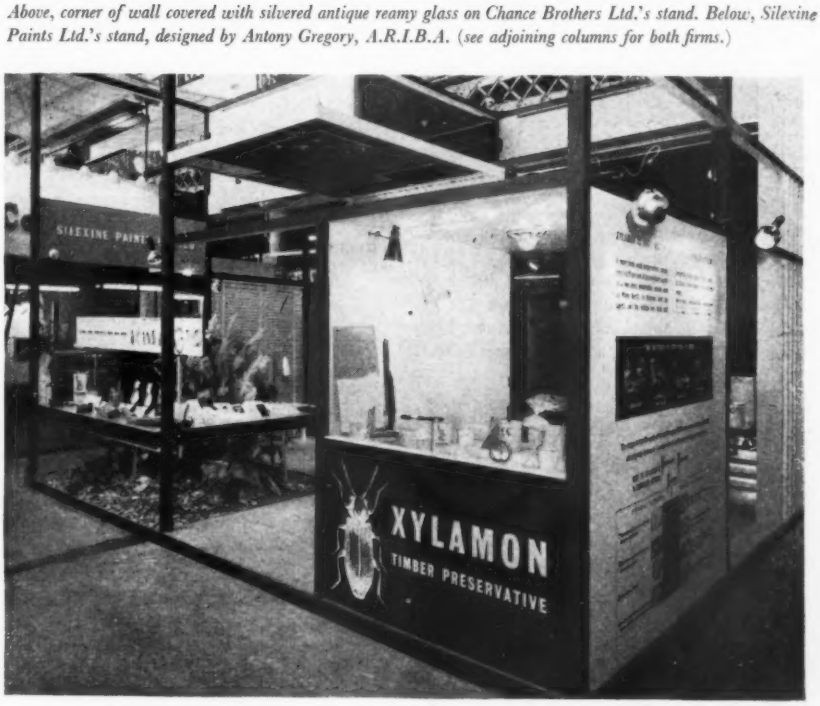
For the protection of concrete, **Inertol Co. Ltd.** showed a chlorinated rubber-based enamel, and **Sealocrete Products Ltd.** had a concrete curing compound which is either brushed or sprayed on.

Aero Research Ltd., of Cambridge, showed a new epoxy resin floor sealer Ardux Sealer 485. It is good news also that their Aerolite urea-formaldehyde glue—the kind of stuff they use on aeroplane fuselages and Trofdek roofs—is shortly going to be marketed in 6s. packs so that the most primitively equipped joiner will no longer have any excuse for sticking (if that is the right word) to his animal glues.

COLOURED GLASS

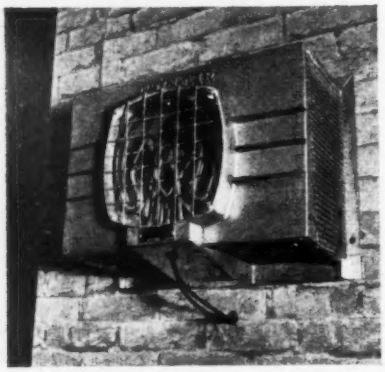
A stand which deserved particularly well of architects was that of **Chance Brothers Ltd.**, which had been designed by Lady Casson to show off the possible uses of glass to bring colour back into building. Coloured glasses were used in lighting fittings, in transparent screens and—perhaps most hopefully—as light-reflecting wall surfaces. One example of this use (see page 748) was a mosaic panel designed by Humphrey Spender, built up of unevenly set inch squares of different glasses. These included the three standard varieties of coloured glass—reamy, seedy and streaky—but included also opal glass and both silvered and unsilvered flashed glasses. Another example was a corner of the stand which had been covered with large plates of silvered antique reamy glass (you may judge the result from the picture on this page).

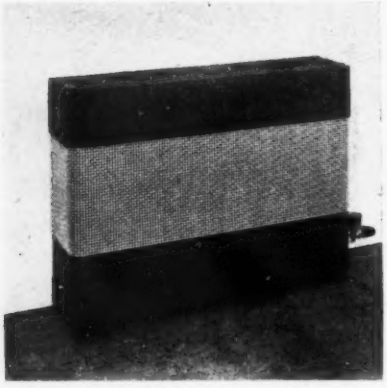




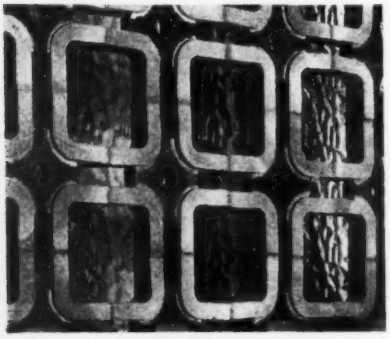
Above, corner of wall covered with silvered antique reamy glass on Chance Brothers Ltd.'s stand. Below, Silexine Paints Ltd.'s stand, designed by Antony Gregory, A.R.I.B.A. (see adjoining columns for both firms.)







Top, Cannon (G. A.) Ltd.'s Gas Miser an all night burning gas fire. Centre, Brentford Electric Ltd.'s Twin-Air forced air heater operated on the heat pump principle. Above, F. A. Borchardt Ltd.'s DRUgasar balanced flue gas space heater. (All mentioned on this page). Below, the Sussex and Dorking United Brick Companies Ltd's moulded clay units (see page 746).



HEATING

Because, perhaps, of the inhibiting effects of purchase tax, new developments in heating equipment tend to favour industrial rather than domestic use. The most popular medium for heating this time (perhaps as a result of the BRS/MOE tests on schools) was forced air. This is a method which lends itself to industrial use, chiefly of course because of its heating performance, but also because the noise of the fan is not considered a significant disadvantage. There were three interesting forced-air exhibits in this class. The range of diesel-fired combustion heaters shown by **S. Smith & Sons (England) Ltd.** were originally developed for use in ships and railway coaches, but have recently been taken up for factories, and a chart on the stand showed that the firm are planning to market a model for domestic use. One model, the 50A SM, which has a full heat output of 50,000 BTUs, costs £130 —complete with control panel, fuel filter and power pack. Also on show on this stand was the smaller German Webasto Model 30 HLI which has an output, at full heat, of 12,000 BTUs and costs £87 7s.

E. K. Cole Ltd. showed a new range of fully-electrical, forced-air heaters, also mainly, but not exclusively, for industrial use with ratings of 3, 5 and 10 kWs, which sell at £13 10s., £17 17s. and £25 respectively.

Brentford Electric Ltd., the firm which market the Brentford Duotherm heat pump, have produced a version of forced air heater using the heat pump principle, the Twin-Air. This is built into an outside wall and can serve for cooling or heating with an average coefficient of performance which is stated to be 4.75. It is made in two models. The larger has a 1 h.p. compressor, the smaller a ¾ h.p. compressor. The larger has a heating capacity of 15,000 BTUs and a cooling capacity of 10,800 BTUs. Like all heat pumps it is expensive to buy (£154) but is claimed to cost only ¼d. per hour to run.

Applications of the heat pump are still of great technical interest. To the two models already familiar to readers, the Brentford Duotherm and the **Ferranti Ltd.'s** Fridge-Heater, and to the Brentford industrial heater just mentioned, we must add a new specialized application by Brentford, the Thermo-Koolair. This, like the Duotherm, provides "cool, fresh air plus hot water," but as its cooling capacity is high (3,000 BTUs for the ⅓ h.p. model, 3,500 BTUs for the ½ h.p. model) it is designed for jobs where the space to be cooled is large, such as restaurant kitchens and beer cellars.

Domestic Installations Co. Ltd. showed the Denco-Miller heat pump. This provides space-heating by warmed air, and 4 cu. ft. of refrigeration, and is made (in America) in two models, with outputs of 20,000 and 30,000 BTUs. Information on the stand suggested that if it were available now the cost would be about £500, but that the manufacturers are hoping to be able to show a substantial reduction in this figure when they market the pump in about three months' time. They are also considering marketing a model which will provide hot water as well.

Turning to more conventional types of heat, **F. A. Borchardt Ltd.** showed a range of Dutch gas space-heaters named the DRUgasar heaters, which operate on the balanced flue system. They must, of course, be fixed against an outside wall, but subject to this they give a performance in the room similar to that of central heating. There are six different models, with outputs varying between 15,000 and 57,000 BTUs per hour. The combined inlet and outlet grille is of quite small dimensions, and the heaters can be laid out so that the grilles are regularly spaced in the external face of the building. The gas burner and heat exchanger is completely sealed so that no combustion products pass into the room, and the burner is fitted with a flame failure device so that the main gas supply is cut off if the pilot light is accidentally blown out. For the intermittent heating of large buildings, such as churches, the manufacturers produce thermostatic controls and various clock devices for lighting up the heaters at any required time.

Prices vary from £47 to £86, including purchase tax, which is deducted if the heaters are not used for domestic purposes.

Another new gas-fired appliance is **Cannon (G. A.) Ltd.'s** Gas Miser, which has been designed for all night burning. This is a convector gas fire which is more readily adjustable than gas fires of the ordinary type. More details are given on page 751.

Radiation Group Sales Ltd. showed their solid-fuel Heatmaster, the unit which combines cooking, space- and water-heating. This is not yet on the market and the price has not been fixed, though it is reported that it will be somewhere between £130 and £150.

New equipment in radiators included **Econa Modern Products Ltd.'s** Econarad, an all-copper radiator, and **Crane Ltd.'s** skirting heaters, which has been described in The Industry (AJ: November 24); also the Panelaire, a pressed steel panel convection heater of Swedish design on **Steel Radiators Ltd.'s** stand, but which is not yet in production.

One last specialized product which calls for mention is a new electrical drying-cabinet heater, which is shortly to be marketed by **E. K. Cole Ltd.** The heating element has a maximum loading of 2½ kW. and is protected against drips by a louvred "roof" made of heavy gauge steel sheet, cadmium-plated against corrosion. The price, including purchase tax will be £10 10s.

SOLID SMOKELESS FUELS

The main exhibits on the stand of the **Solid Smokeless Fuels Federation** were two fuel stores, one suitable for incorporation in a balcony-entrance flat and the other an outside store for a semi-detached flat. It was rather disturbing to find that the recommended position for the former was next to the front door and so arranged that you must scoop it up from the wind lobby; it was disturbing also to reflect that smokeless fuel tends to be more bulky than the other kind and that the nuisance in flats is proportionately greater.



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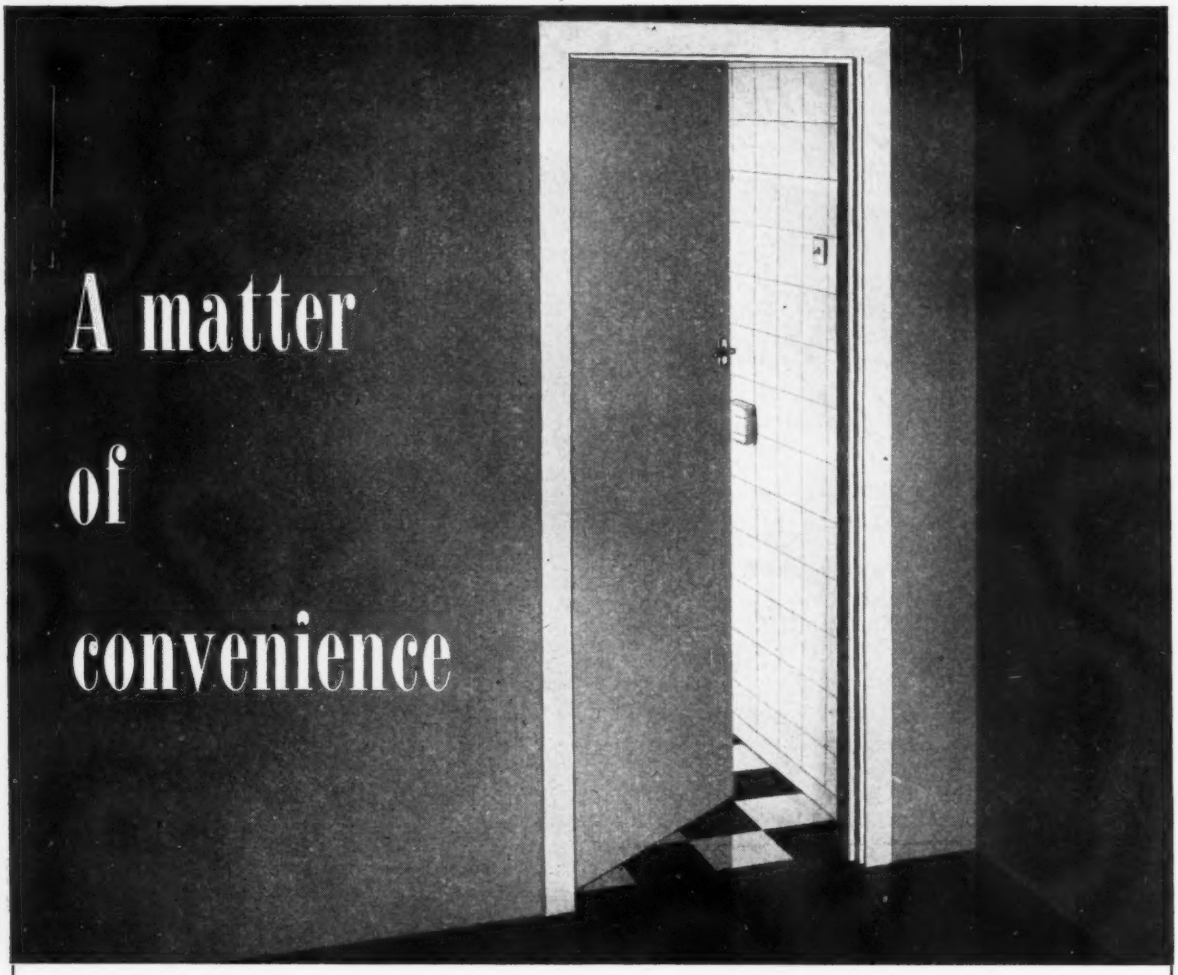
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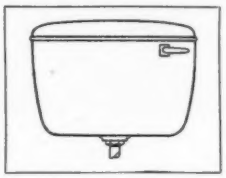


A matter of convenience

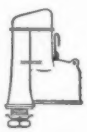
It's so convenient to have a discreetly silent flush-at-a-touch lavatory cistern at one's command. Convenient, too, for the architect to have such a cistern at *his* command. A cistern he can specify with the knowledge that it will function just as efficiently in years to come as it does when newly installed. Such a cistern is the 'Lynx'. The 'Lynx' not only works silently at a touch, but is also extremely pleasing to the eye. The gleaming shell—designed by a leading industrial designer—has no dust-collecting nooks or crevices, will not rust or corrode, never needs painting, wipes clean with the flick of a cloth and is beautifully hygienic.

Ask for the 'Lynx' with the 'Kingfisher' syphon mechanism. The 'Kingfisher' is made of Shirene—non-corrosive, rustless, non-ageing, unbreakable—and can be used in hard and soft water areas. If the cistern you specify is not a 'Lynx', you can nevertheless, if it is flat-bottom type, specify that it should contain the 'Kingfisher' syphon mechanism.

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S.26



Above: The Cape Asbestos Co. Ltd.'s stand. See page 753. Designed by Cassidy, Farrington and Dennys, A./A.R.I.B.A. Below: the Gas Council's stand.

THE GAS COUNCIL

The **Gas Council** stand (right) was a useful reminder of products which have been on the market for some time and which are well worth knowing about. One new product was also shown, the Gas Miser (see page 750), made by **Cannon (G.A.) Ltd.** This is a normal gas fire with ducts running behind the radiants to provide a certain amount of convected air. It gets its name, presumably, because the gas can be adjusted to burn at three rates: 36 cu. ft., 22 cu. ft., and 12 cu. ft. an hour—the last rate providing, it is claimed, background warmth to a 2,000 cu. ft. room at a penny an hour. It is of reasonable appearance, not too borax, but has a base chamfered at the back which would act as a trap for dirt. At £29 18s. 10d. the Gas Miser is not particularly cheap, but it looks worth the money. Also on the stand was the Conray, a rather more modest affair which also convects air and is made by General Gas Appliances Ltd. It costs £20 19s. 4d., and burns at the rate of 30 cu. ft. an hour.

Also shown was a new 1½ gal. gas storage water heater, the Speedlyn, by **Radiation Group Sales Ltd.** This was designed particularly for positions—such as the top floors of tall houses—where water and gas pressure are too low to operate an instantaneous heater. It takes 10 minutes to raise water to 140 deg. F. from first lighting and costs £15 9s. 4d.





Entrance to offices.

Architects: Max Lock & Partners, F/AA., R.I.B.A.

General Contractors: A. E. Monk & Co.

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TDA

PLUMBING

In the 1953 Exhibition the main excitement in the world of plumbing was the triumphant vindication of the single-stack system. There was nothing quite so revolutionary this time: the nearest to it was the introduction of neoprene jointing for waste stacks which could be seen on the stand of **Federated Foundries Ltd.** The FF joint, as this development is called, comprises a flanged neoprene washer which is held tightly in position by a collar and screws. This system, which has already been accepted by a number of authorities (including the LCC, Birmingham and Bradford), results in a really important saving in plumbers' time. It has so far been applied only to branches entering the main stack (including, incidentally, 4-in. branches for w.c.s), but it can surely be only a matter of time before it is applied to the stacks themselves. It does one good to think of all the fiddling about that will save.

Two interesting plumbing gadgets are the new design for w.c. cistern ballvalves proposed by BRS to replace the Portsmouth type valves; and **Peglers Ltd.'s** Prestex ball feed which provides a simple method of releasing the small amount of make up water required for the expansion tanks of central heating or indirect hot water cylinders. The amount of make up water required is normally quite small and the ordinary ball valve operates so seldom that it tends to become corroded and stiff. The Prestex feed consists of a float which carries the feed pipe and is connected to the main cistern with a flexible tube. When water evaporates the flow falls and water flows by gravity through the U section of the pipe until the water in the expansion tank rises so that the top of the U is above the level in the main cistern, thus shutting off the supply. The price is 35s.

Though it is not new in the strict sense, the Primatic Dublotank (diagram right) by **Range Boilers Ltd.,** seems to deserve special notice as it is so exceedingly ingenious. It is a pair of intercommunicating copper hot water cylinders, into one of which is fixed the "Primatic" expansion chamber which enables the unit to serve as an "indirect" cylinder without all the fuss and expense of an expansion tank. The advantage of the double tanks is twofold: first, as they are each only about a foot in diameter they fit easily into a normal shallow cupboard; second, since each is little more than a narrow tube, cross-currents are discouraged so that if hot water is drawn off, the cold water replacing it will not at once dilute the hot which remains.

There was little new in the field of sanitary fittings. **Econa Modern Products Ltd.** showed a model demonstrating the inability of the standard 3-in. deep S. trap for washbasins to provide (in certain circumstances) the minimum 1-in. seal advocated by BRS and proposed a new resealing bottle trap as an alternative. **Barking Brassware Co. Ltd.** showed a "high-low" shower attachment which can be supplied with all their "bath, shower, shampoo and anti-scald mixers" which enables the shower head to be fixed high up for adults or lower for children.

If there was little new in sanitary fittings, there was even less in sanitary ware. One item which was new to us, though it has been on the market for some months, was **Allied Ironfounders Ltd.'s** "Tubbie Bath" (photo right). This is a bath for tight conversion jobs in which you sit, not lie. It is 2 ft. 7¾ in. long by 2 ft. 1¼ in. wide, and there is a seat. Though it would probably not be the choice of anyone who can have a full dress bath, it must be very economical in water, very good for bathing small children—and definitely better than no bath at all.

RAINWATER GOODS

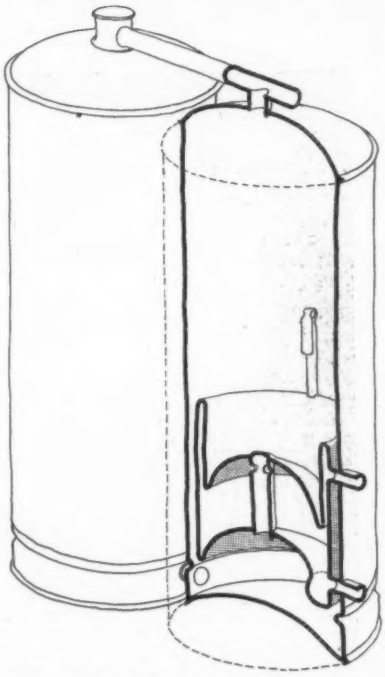
No radically new fittings appeared amongst the rainwater goods shown at the Exhibition. **Vitreflex Ltd.'s** vitreous-enamelled rainwater pipes were on show, with their smooth and neat jointing system admirably demonstrated. The LCC have become quite a reference when quoting on the selection of products and it is interesting to know that these pipes have been specified on LCC schemes. In most cases the cost of these pipes is less than ordinary three-coat painted cast iron pipes, but they do tend to chip if badly handled. **Finlock Gutters Ltd.** introduced a new aluminium-bitumen gutter lining for lining their precast concrete gutters and also showed the new Finlock Sprocket. This ingenious piece of pre-casting forms lintol, eaves overhang and eaves fascia all in one piece.

F. H. Bourner & Co. (Engineers) Ltd. showed their usual range of Supataps. The latest variant has a needle valve which regulates the rate of flow in the base, and a sprinkler attached to the tap itself. The resulting fine spray is recommended for places where people wash their hands under a running tap of warm water: schools, cloakrooms and factories. The tap is now under test at the National Physical Laboratory, and the makers claim that the saving in water and fuel due to the reduced, but still efficient, flow of water is considerable.

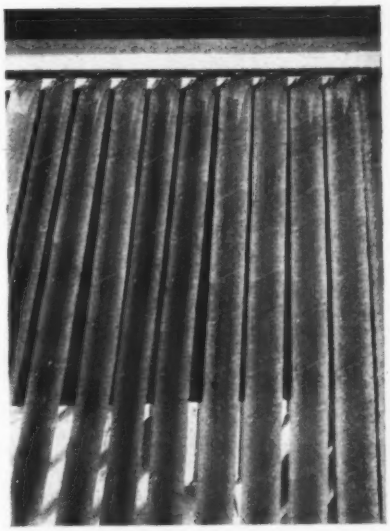
BRITISH ELECTRICAL DEVELOPMENT ASSOCIATION

The **British Electrical Development Association** continued their campaign in favour of the 13 amp. socket and the ring main with an exhibit which showed a gruesome collection of plugs of all sizes and shapes, and asked us to picture the housewife going round from room to room with her electric polisher with pockets stuffed with adaptors. An exhibit dealing with wiring installations in conversion jobs proved much less helpful than we had expected and, in the event, by far the most promising item was a model of an electronic lighting installation in a school. By installing light-sensitive cells in representative positions in a building it is possible to ensure that lights go on (and off) as soon as the daylight passes a pre-selected level. It is claimed that the extra cost of installing electronics is offset by economies in wiring (i.e., by eliminating individual switches). But whether or not this is so, the idea is surely valid. We rightly set great store by the achievement of certain "levels of





Top: Allied Ironfounders Ltd.'s Tubbie Bath. Above: sectional diagram of Range Boilers Ltd.'s Primatic Dublotank. (see this page for both items) Below: a prototype vertical venetian stop blind on Silent-Gliss Ltd.'s stand. (See page 753.)



EGYPTIAN to... *Elegance*

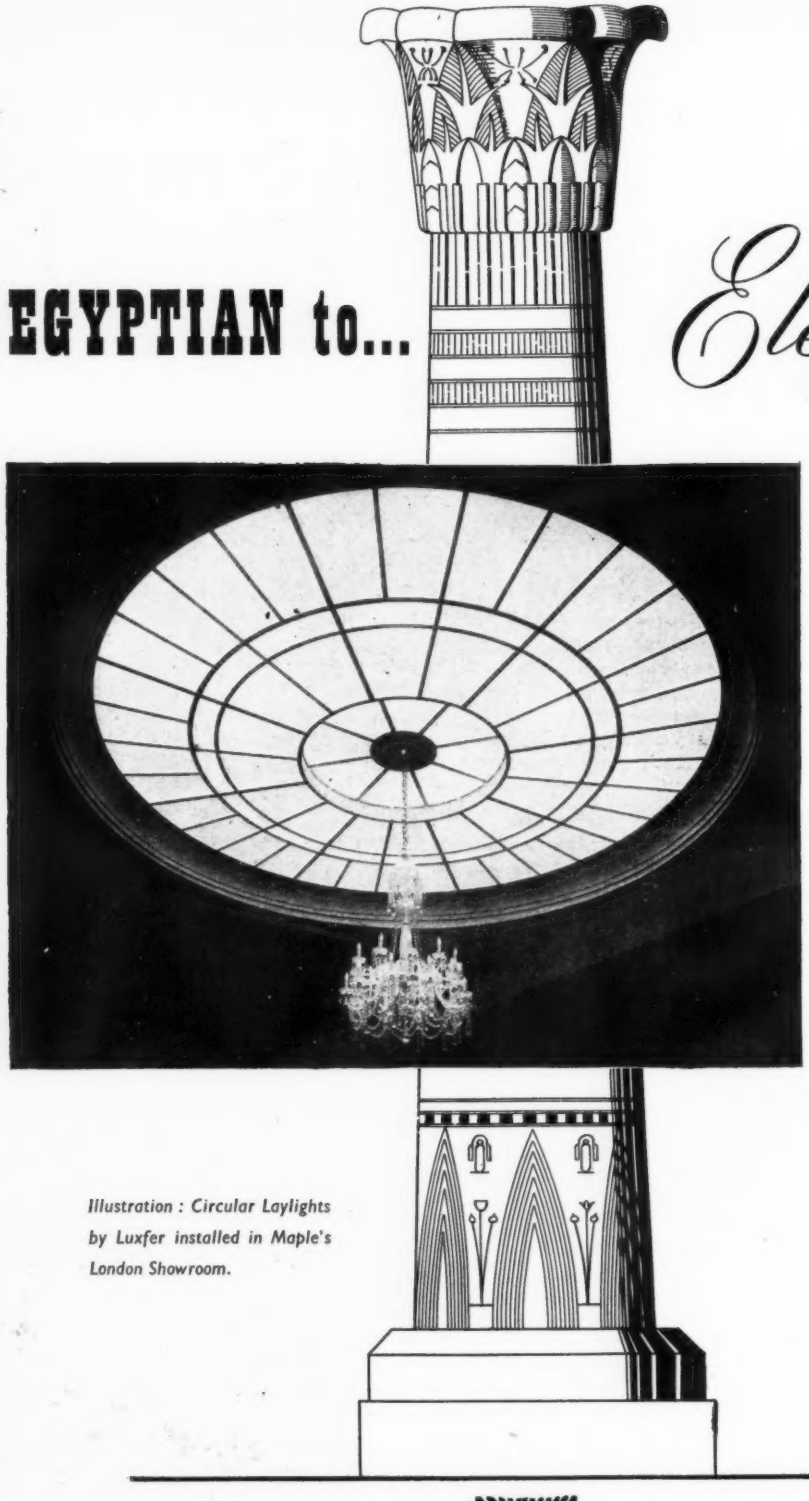


Illustration : Circular Laylights by Luxfer installed in Maple's London Showroom.

and every era of design where trueness of line is essential Luxfer devote themselves to the manufacture of all constructions through which daylight is admitted into a building.

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illumination" in our buildings when we design them, but experience shows that as users we are generally too lazy to care if we get these levels in practice, with the result that we wilfully submit to conditions likely to bring on eye-strain. If the decision to turn lights on and off can be placed in the hands of a reliable judge, we shall certainly be better off.

ASBESTOS CEMENT SHEET AND ITS NEIGHBOURS

The Asbestolux stand (page 751) was serious and engaging and offered a perfect example of how a product which, in itself, is prosaic enough, can, by being related to the context of building, be made significant. The **Cape Asbestos Company** (as architects well know) have had the good sense to approach the best makers of all the more important products with which theirs must be used; and they have, whenever possible, arranged for the manufacture of composite products in which Asbestolux figures together with something else. This was done, for instance, with certain cladding materials shown on the front of the stand, where Asbestolux was shown faced with Alochrome aluminium sheet, with vitreous enamel steel, with Epikote resin stove enamelled, with Plyglass Vitroslab and with Mineralite (see photograph on page 738), and with Cementone No. 9. Another type of inter-firm understanding is dimensional co-ordination; as, for instance, when Asbestolux ceiling panels were specially made to fit in the Modulux ceiling. The main purpose of the Cape Asbestos stand was to show the detailing required to incorporate Asbestolux with certain types of curtain wall construction. Nevertheless the point of greatest technical interest was a detail, seen through an armoured glass panel in the floor (see photograph, page 738), showing a method of constructing a suspended ceiling to give four hours' fire protection—the standard which we will have to work to when we build the very high buildings now being contemplated.

DOOR AND WINDOW GEAR

One class of builders' hardware which seemed to attract more attention than usual was garage door equipment. Though there was nothing new in principle, and though we have mentioned most of the individual products in The Industry columns of the JOURNAL, there does seem to be a much wider choice than usual. If only because of its connection with big-time architecture, mention must first be made of **Esavian Ltd.'s** Type 250A vertical-folding door (see page 755) for fire stations. This counterbalanced door will be available with electrical operation. Cost works out at about 30s. per square foot (supplied and fixed) in the London area. The example on show (see photograph on page 755) was priced at £150. Domestic garage doors have nearly all gone over to the "up-and-over" principle—a form which has the great advantage of leaving the sides of the garage free from obstruction, and of getting rid of the nuisance of the bottom sliding-door track. The ultimate refinement is, of course, to have an electronically controlled door which opens when the car approaches and shuts when the car is inside. This is a rather expensive business: the cost of the "Acromatic" door **(Acrow [Engineers] Ltd.)**, operating on this principle, is £67, including the door itself, the fittings, and all the electrical gear. (The Acrow door costs £25 and the fittings alone cost £11 11s. 6d.) Another version of the electronic trick is that used on the **Bolton Gate Company Ltd.'s** "Dryvin." Although this is a more conventional vertical-hung door, all gear is out of the way, above head level.

Two other excellent versions of the "up-and-over" lock-up type on view were **Arthur L. Gibson and Co. Ltd.'s** "Kinnear" and **Clark, Ellard Engineering Co. Ltd.'s** "Overdor." The first of these is in effect a double-skinned version of the associated company, Ernest Batley's original "up-and over door" and sells from £30 (the Batley costs from £18); while the second, the "Overdor" is the trade name of an ingenious set of door gear which has the merit of including a weather-stripping device and sells for £12.

On the stand of **Clarke, Ellard Engineering Co. Ltd.** was a contrivance which allows an L-shaped room to be divided in two ways, by sliding partitions which can shut off either of the two arms of the L. The American Modernfold door, a vynide concertina-type partition with top track only, which presses very firmly down on to the floor to exclude all possibility of draughts (see photograph top right) is manufactured by **Home Fittings (Great Britain) Ltd.**, one of the Brockhouse companies, and is expensive, a door 7 ft. high and 9 ft. 9 in. wide (to quote one example at random) costs £73 15s.

There is surely little further that can be expected in the way of venetian blinds. **J. Avery and Co.** have a new rod operation which combines tilting with raising and lowering; while **Silent-Gliss Ltd.**, the people who specialise in not-so-noisy curtain rails, showed a prototype **vertical** venetian blind (see photographs on page 752) for shop windows, which has the advantage that you can turn the slats to counter sun striking in from the side. Also in the shopfitting class was the Autodean, by **Deans Blinds (Putney) Ltd.** new version of the awning with arms which open in the same plane as the awning itself.

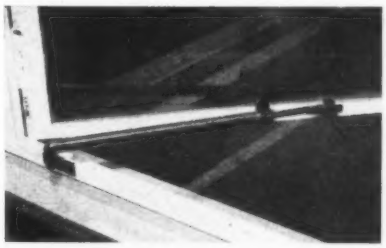
There was little on show in the way of ordinary door and window furniture. **Williams and Williams Ltd.** are much to be congratulated for having commissioned a designer (Jack Howe) to think again about the design of furniture for metal windows (see photographs right) which up to now have used furniture traditional to wood windows. **Dahl Bros. Ltd.** are marketing a neat Norwegian cabinet catch which incorporates the catch in the handle (see photograph on this page) and sells for 6s.

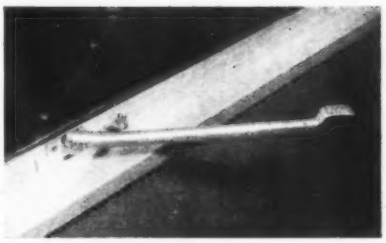
We might logically include in this review of door and window gear a new metal finish, electro-plated tin nickel alloy, which the **Tin Research Institute** is proposing as an improvement on chromium plate. It costs about the same as chromium plating, but has a warmer, more pleasant glint and is said to stand up better against tarnishing, particularly in polluted atmospheres.

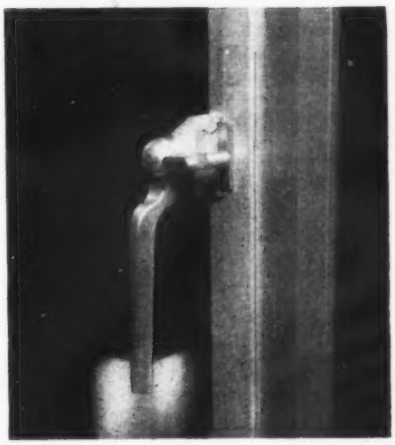




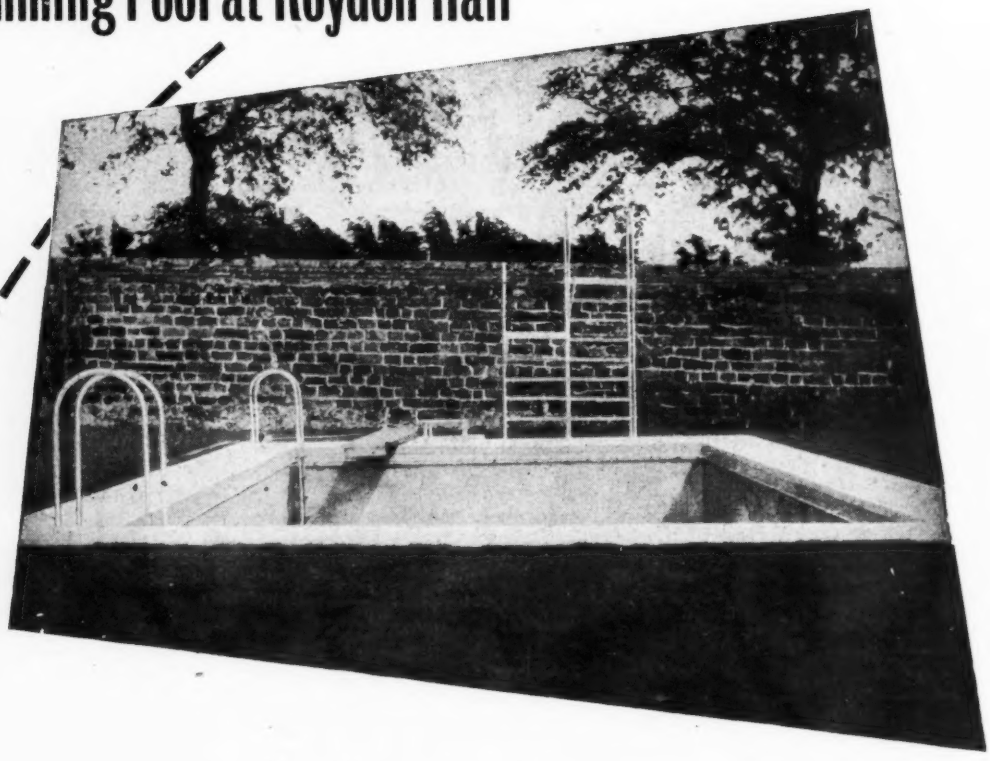
Top: Home Fittings (Great Britain) Ltd's Modernfold folding door. Above: Dahl Brothers Ltd.'s Amca cabinet catch. Below: three examples of fittings specially designed for Williams and Williams Ltd.'s Aluminium windows by Jack Howe.







Swimming Pool at Roydon Hall



In the lovely grounds at Roydon Hall, Norfolk, a swimming pool has been constructed for John Alley, Esq., J.P. The pool is 34 ft. long and 20 ft. wide, one end being 3 ft. 6 ins. deep increasing in the middle to 8 ft. and decreasing at the other end to 6 ft.

'PUDLO' Brand Waterproofer was specified to render the walls and floor waterproof, the bath having been built of brickwork with an ordinary non-waterproofed concrete floor 15 ins. thick composed of 4. 2. 1.

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ROOFING AND PARTITIONS

Among the many roofing systems and coverings shown was the new Thermoglas felt on the stand of **D. Anderson & Son Ltd.** This is a roof felt with a glass fibre base and is claimed to be "inert, rot-proof and chemically stable." At the moment the cost is somewhat higher than the more familiar hessian-based felts, but the makers hope to reduce it to a comparable figure. The firm also make structural roofing systems, the most interesting of which were the aluminium "E" deck and "Andek." Details of the former can be found on Information Sheet 20.Z7 (JOURNAL, August 11, 1955). An insulation board is placed over the 2¼ in. deep deck unit, and it is recommended that a layer of felt should be placed under the insulation board where a humid atmosphere is anticipated.

We no longer expect great originality in partitions. The only examples at the Exhibition which were sufficiently new to deserve mention were the Shearwater (manufactured by **Shearwater Ltd.**) and the Werno (marketed by **Richard Savage (Agencies) Ltd.**). The latter, which is of Swedish origin, was first offered for sale some time ago, but has only recently become generally available. It is a light, straw-cored panel, with a timber framing. In Sweden it is often used as a visibly "demountable" partition, set between aluminium posts and it looks better in this form than as a substitute "solid" wall, with the joints concealed. The other partition, the Shearwater, has a honeycomb kraft paper core, which is impregnated with acrylic resin in partitions for external use. It was originally developed for aircraft work where its light weight was of decisive value. Made in 2 in. and 2½ in. panels it can be provided with almost any finish, the cost of the 2 in. panel with plasterboard both sides being 11/9 per sq. yd. (ex works). Its strength is very great and, in fact, it is being tried out as a material for making built-up structural beams.

COPPER DEVELOPMENT ASSOCIATION

The chief interest on the **Copper Development Association's** stand centred round the various copper finishes which were incorporated in the stand itself. The walls of the stand were covered with 6-in. square plates, among which dark-green, acid-etched plates alternated with satin-finish plates, stove-lacquered, of relatively "pure" copper, gilding metal and nickel silver. On the back of the stand were some very handsome drainage stacks irrelevantly (but, for exhibition purposes, justifiably) polished for the occasion.

ZINC DEVELOPMENT ASSOCIATION

The **Zinc Development Association's** stand contained an interesting chart giving the result of some tests on different types of zinc coatings carried out in Sheffield (which for zinc purposes is the most corrosive atmosphere available). This chart seemed to establish that the effectiveness of a zinc coating depended not on the method used but on the thickness of the metallic skin, and suggested that 2 oz. of zinc per sq. ft. was about right. A second chart showed the calculated life of 2 oz. zinc coatings in various atmospheres. This varied from about 6/7 years in Sheffield (which was rock bottom) to over 100 years in the pure airs where there is no sea and no industry to corrode.

BRITISH STANDARDS INSTITUTION

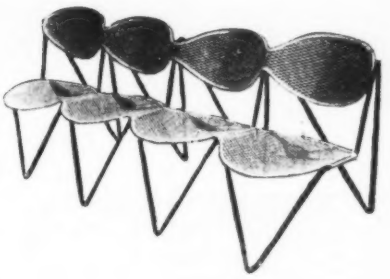
The **BSI** stand was rather a disappointment, doubtless for the same reasons as **DSIR's.** This is a pity because, after all, **BSI** have something to "sell," just like anyone else, the only difference being that what they sell profits all of us. The stand showed a large cut-away diagram of a deliberately "ordinary" local authority house with key numbers indicating which elements are covered by British Standards. This had a sort of pelmanistic interest but did not get us very far. If only someone would begin to worry about the qualitative progress of standards! The stand also showed the new looseleaf Handbook of Standards used in building, which is excellent.

MISCELLANEOUS

In any building exhibition there is a number of exhibits which do not fall easily into any category, but which are hardly important enough to have one of their own. We therefore conclude by giving this year's crop, quite at random and without pretending that there is any connection between them.

One very modest item which we have not seen before is a milk bottle niche—or rather, a range of milk bottle niches—manufactured by the **Sussex Cement and Concrete Products.** There are various sizes ranging from a two pint niche (see photograph right) to one for four quarts—though as the firm have been advised that quart bottles are frowned on by the milk trade, the latter are not likely to be made much longer. The firm also have some large louvred blocks (page 750) for screen walls, made to the designs of Eric Lyons, ARIBA.

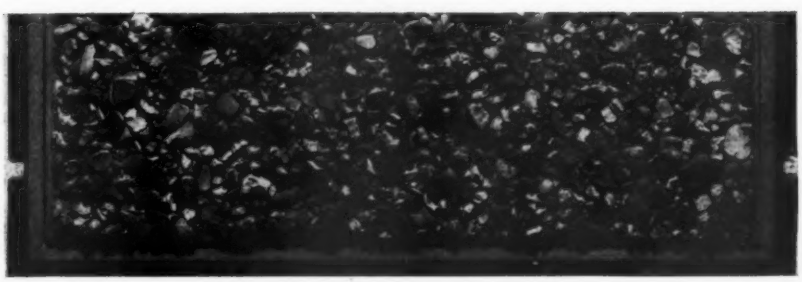
Among the gadgets shown at the exhibition we must mention the Perspektiv-Automat marked by **W. G. Pinner & Sons**: a contraption which simplifies the drawing of perspectives from plans and elevations. It is too expensive for the small office, but might prove a decisive tool for checking up on the visual effect of large layouts. Two gadgets for the site contractor are the Italian Tigre plaster gun, marketed by **Brecomin (England) Ltd.,** the Latin answer to the German Putzwerfer, and the "Aqualev" (marketed by **Austin and Trimingham)** an exceedingly cheap—and apparently reliable—substitute for the dumpy level and which comprises essentially a long rubber tube filled with water with gauges at either end.





Top: flattened Expamet used on a garden seat. Above: Esavian Ltd.'s Type 250A vertical-folding door for fire stations (see page 753). Below: Sussex Cement and Concrete Products' milk bottle niche (see this page). Bottom: aggregate finish in Derbyshire spar and Cornish granite on John Ellis & Sons Ltd.'s stand.





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Announcements

PROFESSIONAL

John Miller, A.I.A.A., formerly Surveyor to the University of Oxford, has opened practice as architect and surveyor at Niddons, Hinton St. George, Somerset (Tel.: Crewkerne 386), where he will be pleased to receive trade catalogues.

Hadfield, Cawkwell & Davidson, F/F.R.I.B.A., of Sheffield, have opened an office at 50, Pall Mall, London, W.1, under the supervision of J. D. Shearer, A.R.I.B.A., who will be pleased to receive trade catalogues.

F. V. W. Clark, A.R.I.B.A., has moved from 53, High Street, Owston Ferry, Doncaster, to 24, Malvern Avenue, Grimsby (Tel. No. 77817), and will be pleased to receive trade catalogues, etc.

John Godwin, A.R.I.B.A., is now practising with his wife, Miss Gillian Hopwood, A.R.I.B.A., as Godwin and Hopwood. Their new offices are at 8, Oil Mill Street, Lagos, Nigeria, and they will be pleased to receive trade catalogues. Communications should be addressed to Private Mail Bag 2148, Lagos.

Edward D. Mills, F.R.I.B.A., has taken into partnership F. A. Turner, A.R.I.B.A., and G. C. Bodgener, A.R.I.B.A. The practice will continue at 15, Carlisle Street, Soho Square, W.1, as Edward D. Mills and Partners. (Tel.: GERrard 8305-6.)

Frederick MacManus, F.R.I.B.A., has taken into associate partnership Richard M. Wackerbarth, B.ARCH., A.R.I.B.A. The practice will continue at Edward Armstrong and Frederick MacManus, at No. 28, Gloucester Place, Portman Square, W.1. (Tel.: WELbeck 2273-4.)

Howard & Rider, A/A.R.I.B.A., DIP/DIP/ARCH., Liverpool, DIP/CD., have commenced practice at 10, Rolleston Drive, Wallasey, Cheshire, and will be pleased to receive trade catalogues.

Sidney Loweth, F.S.A., F.R.I.B.A., formerly Architect to the Kent County Council, is now Consultant to H. O. Corfiato, Thomson and Partners, of 15, Woburn Square, London, W.C.1.

TRADE

N. Lowry, formerly in the Lighting Division of Philips Electrical Ltd., in London, has been appointed Branch Accountant at the Company's Branch in Belfast. Alan E. Bland is now representing their Lighting Division in south-east Manchester, including the districts of Hyde, Stockport and Stalybridge.

The sales and administration departments of Ewart and Son Ltd. have moved to 255, North Circular Road, Neasden, N.W.10. (Tel.: Willesden 1234; Telegrams: Geyser Norphone London.) All correspondence should be sent to this address.

G. W. Graham has become Technical Sales Representative for Scotland to the Thermovent Heating Division of E. K. Cole Ltd. He is operating from the Company's Glasgow Depot at 17, Cadogan Street. (Tel.: Glasgow Central 3633/4.)

The Export Department of McKechnie Brothers Ltd. now operates from their London address, 14, Berkeley Street, W.1. (Tel.: HYDe Park 9841/7.)

British Titan Products Company, Limited, have moved their London Office to The Adelphi, John Adam Street, London, W.C.2. (Tel.: TRAfalgar 4451.)

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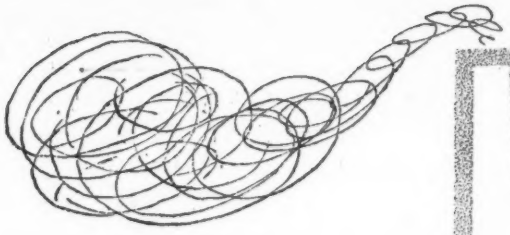
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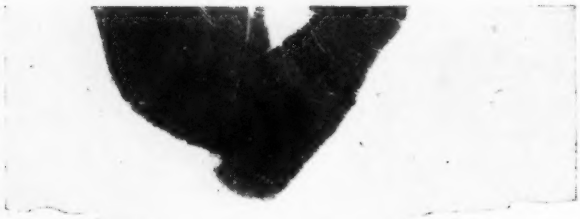
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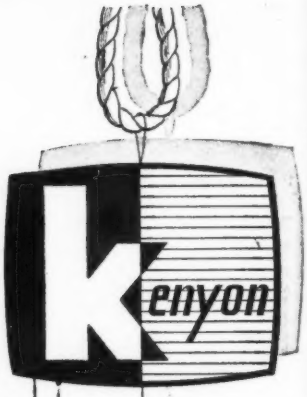
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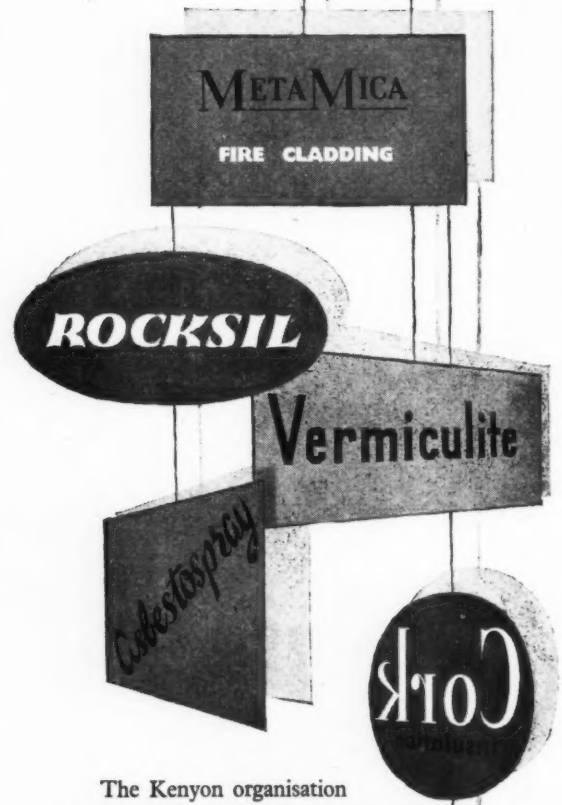
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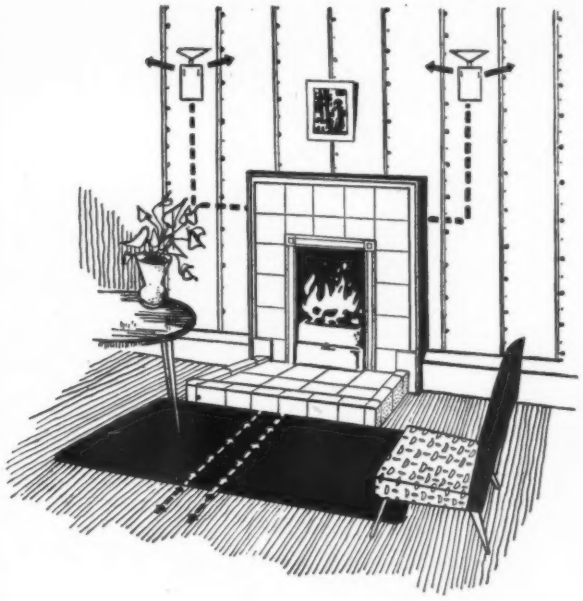
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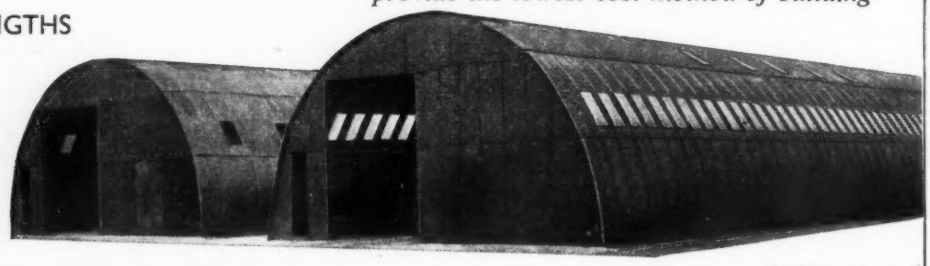
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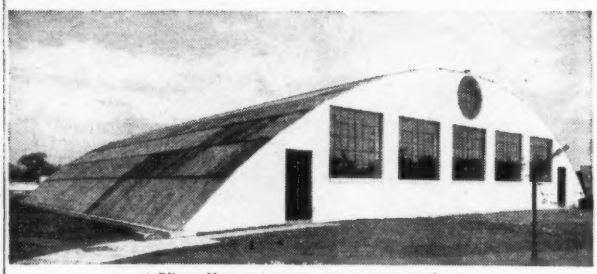
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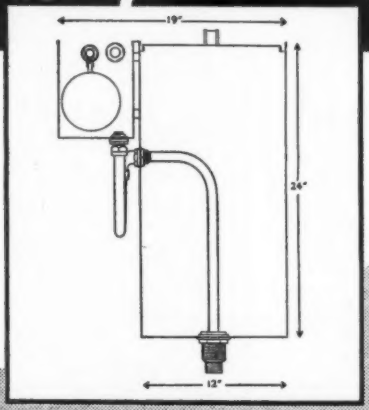
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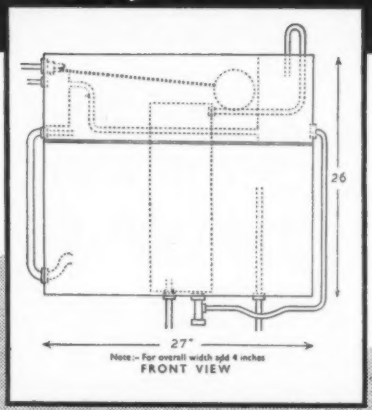
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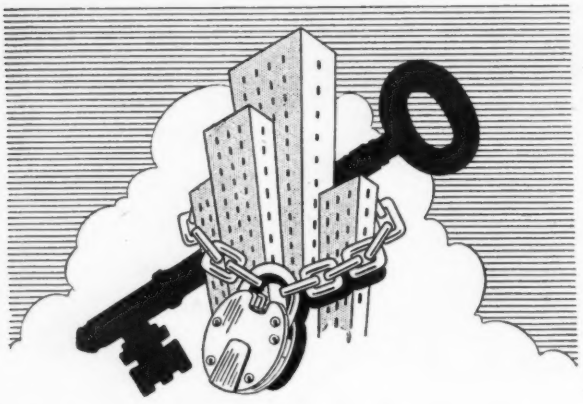
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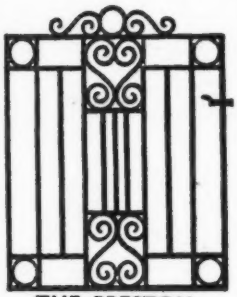
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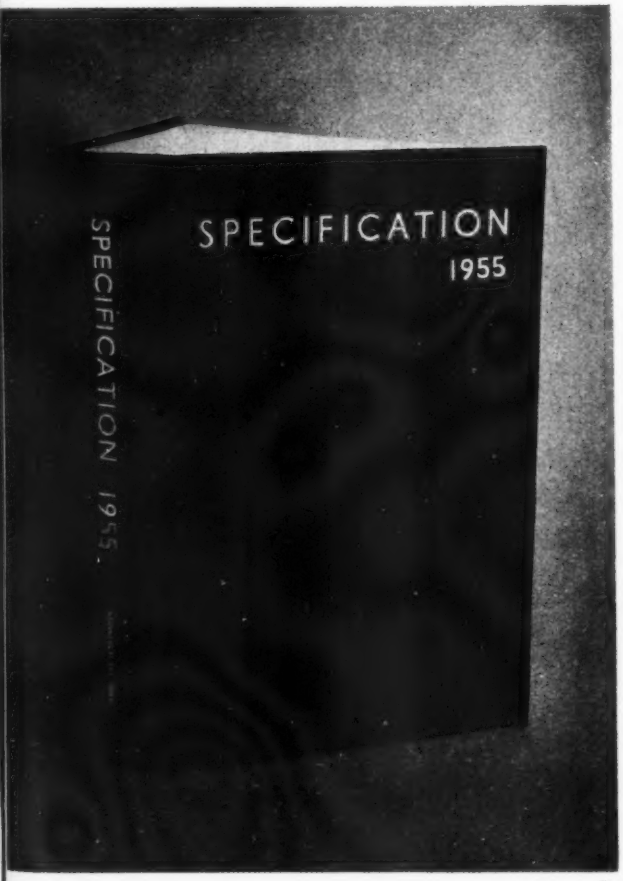
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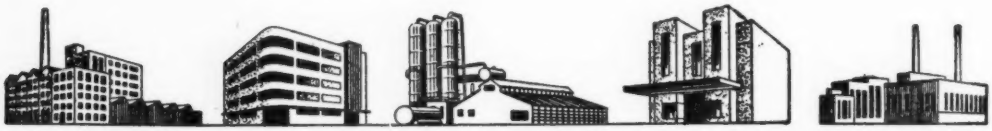
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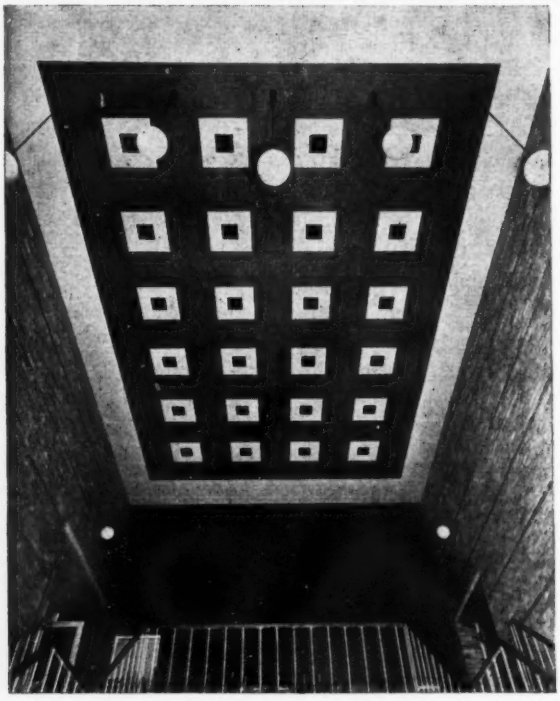
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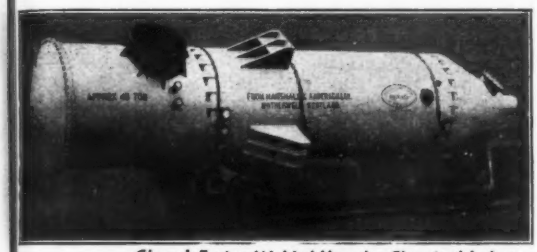
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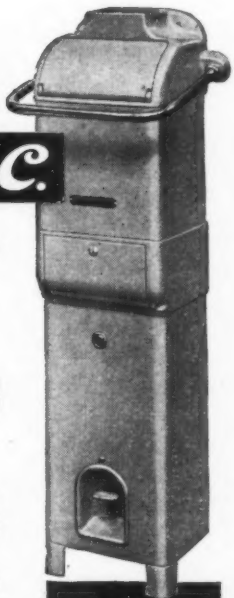
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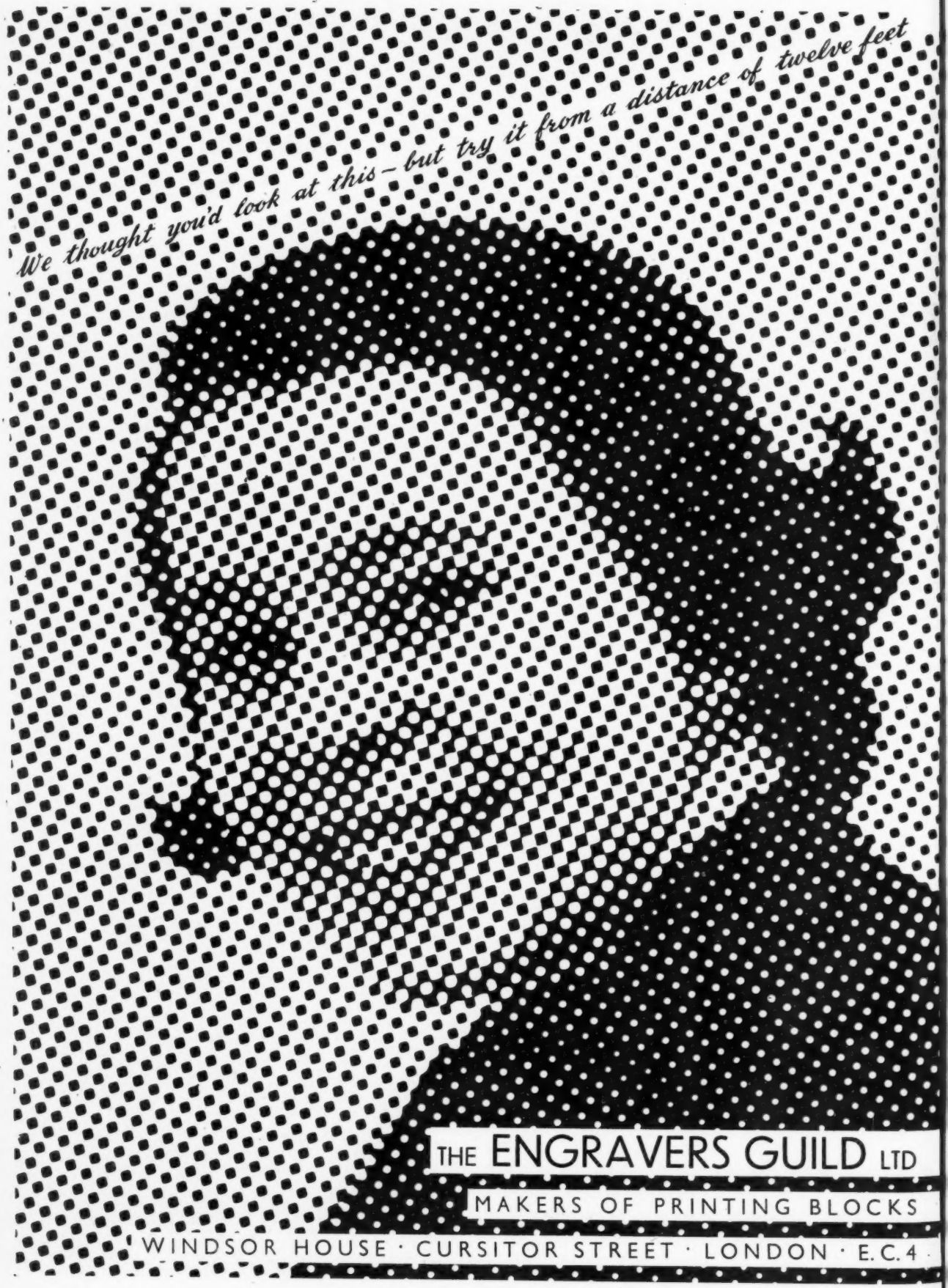
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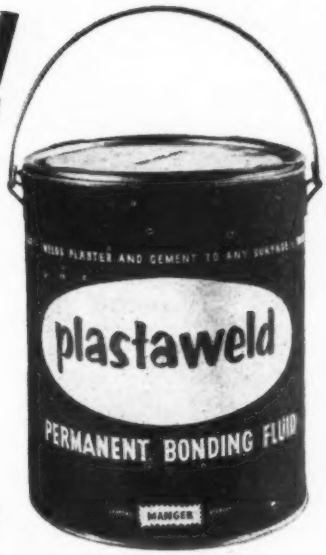
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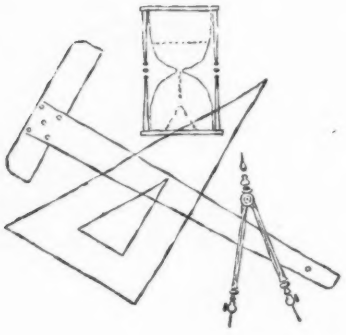
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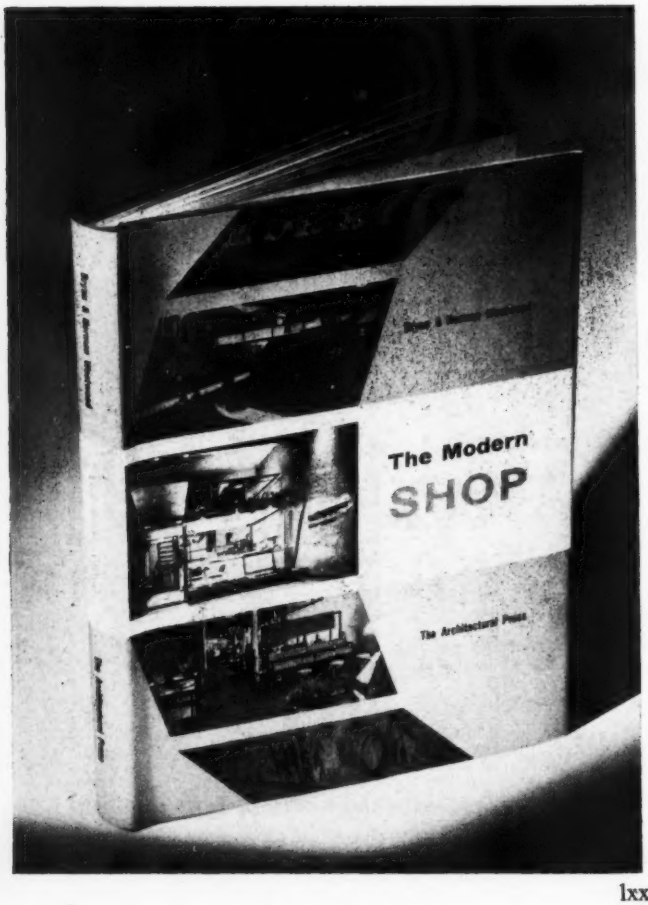
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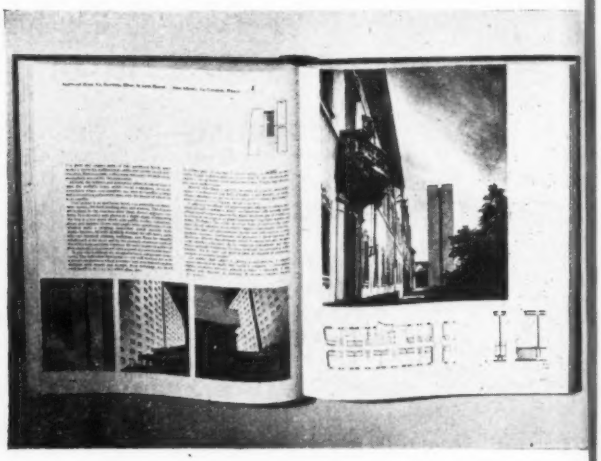
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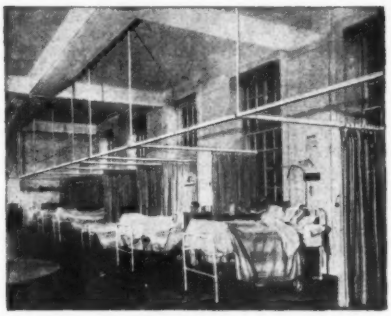
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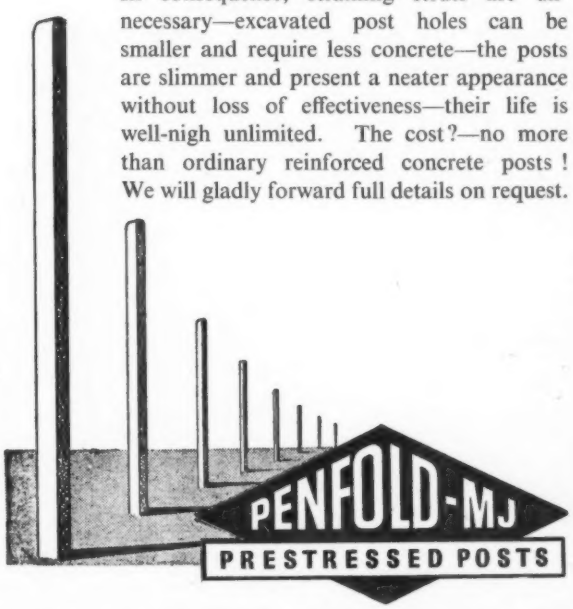
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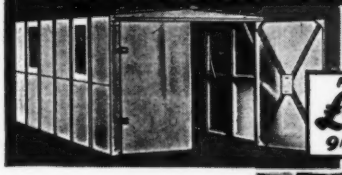
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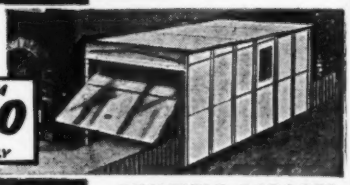
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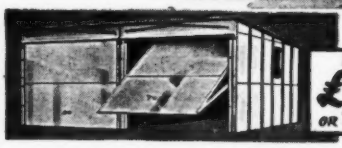
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Further particulars may be obtained from:

THE SECRETARY (K),

68, GLOUCESTER PLACE, LONDON, W.1.

Telephone: WELbeck 9966

EXHIBITION DESIGN

Edited by Misha Black, O.B.E. Contributors: Misha Black, O.B.E., Basil Spence, F.R.I.B.A., James Holland, F.S.I.A., Adrian Thomas, Richard Guyatt, Lynton Fletcher, M.A., J. Mortimer Hawkins, M.I.E.S.; H. F. Clark, A.I.L.A., Dorothy Goslett, Austin Frazer.

THE PURPOSE OF THIS BOOK IS to show what are the essential qualities of a good exhibition and how to achieve them. It contains over 300 illustrations—photographs, drawings and plans—of well designed recent exhibitions grouped under 'Trade Fairs', 'Public Exhibitions', 'Propaganda Exhibitions', 'Travelling Exhibitions', and 'National and International Exhibitions'. The technique of exhibition design is covered comprehensively and in detail. Each chapter is written by an expert in his own field. The mass of information the book contains will be of value to the professional exhibition designer and equally to the exhibition promoter.

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CLASSIFIED ADVERTISEMENTS

Advertisements should be addressed to the Advt. Manager, "The Architects' Journal," 9, 11 and 13 Queen Anne's Gate, Westminster, S.W.1, and should reach there by first post on Friday morning for inclusion in the following Thursday's paper.

Replies to Box Numbers should be addressed care of "The Architects' Journal," at the address given above.

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The engagement of persons answering these advertisements must be made through a Local Office of the Ministry of Labour or a Scheduled Employment Agency if the applicant is a man aged 18-64 inclusive or a woman aged 18-59 inclusive unless he or she or the employment is excepted from the provisions of the Notification of Vacancies Order, 1952.

HAYES AND HARLINGTON URBAN DISTRICT COUNCIL.

Applications are invited for:—
(a) ARCHITECTURAL ASSISTANT (PERMANENT), Grade A.P.T. II, *i.e.*, £560—£640 p.a.; (b) SENIOR ARCHITECTURAL ASSISTANT (TEMPORARY), Grade A.P.T. IV, *i.e.*, £675—£825 p.a., plus London weighting in both cases, 21-25 years £20 p.a., 26 years and over £30 p.a. Candidates for (*a*) must have passed the R.I.B.A. Inter. Exam., good experience of housing work with a local authority; (*b*) must be a Registered Architect, have good general experience in design and construction in relation to municipal housing and other works, and capable of supervising large building contracts. The Council is unable to provide housing accommodation for either of these appointments. Further particulars and form of application available from the undersigned, which when completed must be returned as soon as possible.

GEORGE HOOPER,
Clerk and Solicitor.

Town Hall, Hayes, Middx. 3712

BOROUGH OF HARROW.
BOROUGH ENGINEER AND SURVEYOR'S DEPARTMENT.

Applications are invited from persons possessing the appropriate qualifications for the undermentioned appointments in the Department of the Borough Engineer and Surveyor:—
(*a*) SENIOR ARCHITECTURAL ASSISTANT
A.P.T. Grade V: £750—£900.
(*b*) ARCHITECTURAL ASSISTANT
A.P.T. Grades II/III: £560—£725.
(*c*) ARCHITECTURAL ASSISTANT
A.P.T. Grades I/II: £500—£640.
(*d*) QUANTITY SURVEYING ASSISTANT
A.P.T. Grade II: £560—£640.
Plus London Weighting in each case.

Each appointment will be subject to the provisions of the Local Government Superannuation Acts, the passing of a medical examination and the National Joint Council's Scheme of Conditions of Service.

The Corporation are unable to assist in obtaining housing accommodation for the successful applicants.

Forms of application may be obtained from me, to whom they should be returned, not later than Monday, 19th December, 1955.

D. H. PRITCHARD,
Town Clerk.

Town Clerk's Department,
Harrow Weald Lodge,
Harrow,
Middlesex. 3869

LONDON COUNTY COUNCIL.
ARCHITECT'S DEPARTMENT.

Vacancies for ARCHITECTURAL ASSISTANTS (salary up to £783) in Historic Buildings Section. Duties include the preparation of drawings in connection with the restoration and maintenance of buildings of architectural and historic interest owned by the Council. Inter. R.I.B.A. or equivalent required.

Particulars and application form, returnable by 15th December, from Architect (AR/EK/AAHB/2), County Hall, S.E.1. (1948) 3934

BOROUGH OF RAWTENSTALL.
APPOINTMENT OF SENIOR ARCHITECTURAL ASSISTANT.

Applications are invited from suitably qualified persons for the above-mentioned appointment within salary Grade A.P.T. IV (£675—£885 per annum), commencing at not less than £765 per annum.

The appointment is on the Council's permanent staff and is subject to the Local Government Superannuation Acts, 1937—1953, the passing of a medical examination, and to termination by one month's notice on either side.

Housing accommodation will be provided for the successful candidate, if married, and reasonable removal expenses paid.

Applicants, stating age, qualifications, present and previous appointments, and giving full details of experience, together with names and addresses of two referees, should be delivered to the undersigned not later than Monday, the 12th December, 1955.

J. W. BLOWELEY,
Town Clerk.

Town Hall, Rawtenstall, Rossendale, Lancs. 3911

URBAN DISTRICT OF EBBW VALE.
ARCHITECT'S DEPARTMENT.
ARCHITECTURAL ASSISTANT—GRADE III
(£600—£725).

Applications invited for the above appointment, which is superannuable, subject to medical examination.

Applicants to be Inter. R.I.B.A.

Housing accommodation will be made available.

Further details and forms of application, which are to be submitted by 6th December, 1955, at the latest from:—

H. J. WILLIAMS,
Clerk of the Council.

Council Offices,
The Walk, Ebbw Vale, Mon. 3841
16th November, 1955.

BOROUGH OF WIMBLEDON.
BOROUGH ENGINEER AND SURVEYOR'S DEPARTMENT.

Applications are invited for the following appointments on the established staff:—
(*a*) ARCHITECTURAL ASSISTANT, Grade—Special.
(*b*) ARCHITECTURAL ASSISTANT, Grade—A.P.T. I.

Salary for post (*a*) £650 to £775 per annum, and for post (*b*) £500 to £580 per annum, London weighting additional. Applicants for post (*a*) must be registered Architects and should be members of the R.I.B.A. and for post (*b*) should have attended a full time course of Architecture, and have passed the R.I.B.A. Intermediate Examination or its equivalent. Experience in municipal architectural work would be an advantage.

The appointments are subject to the National Scheme of Conditions of Service, the provisions of the Local Government Superannuation Acts and to satisfactory medical reports.

Applications endorsed "Architectural Assistant—Special Grade," or "Architectural Assistant—A.P.T. I," stating age, qualifications, all former local Government Service, present and previous appointments and experience, length of notice required to terminate present appointment, and the names of three referees, must be forwarded to the Borough Engineer & Surveyor by the 9th December, 1955.

Candidates must disclose to the undersigned if, to their knowledge, they are related to any member or senior officer of the Council. Canvassing disqualifies.

FRANCIS J. O'DOWD,
Town Clerk.

Town Hall,
Wimbledon, S.W.19. 3860

CITY AND COUNTY OF BRISTOL.
APPOINTMENT OF PLANNING ASSISTANT.

Applications invited for appointment of PLANNING ASSISTANT in City Engineer and Planing Officer's Department. Salary in accordance with Special Grade (£650—£775) if successful applicant has passed Final Examination of Town Planning or other appropriate Institute and has necessary experience or Grade A.P.T. II (£560—£640) if he has passed Intermediate Examination of such Institute.

Applicants should have had good general planning experience, including preparation and administration of a Development Plan and control of development.

Applications giving age, qualifications, present and previous appointments and full details of experience, together with names of two referees, should be sent to City Engineer and Planning Officer, 470, Bath Road, Brislington, Bristol 4, by 12th December, 1955. 3902

COUNTY BOROUGH OF SOUTH SHIELDS.
APPOINTMENT OF PROFESSIONAL STAFF.

Applications are invited for the following appointments:—
SENIOR ARCHITECTURAL ASSISTANTS—£735—£900 per annum.
SENIOR QUANTITY SURVEYING ASSISTANTS—£735—£900 per annum.

The appointments are permanent and are required in connection with the Council's Development Programme which envisages a variety of major works.

The Conditions of Service are those as adopted by the National Joint Council for Local Authority staffs and successful candidates will be required to pass a medical examination for superannuation purposes.

Housing accommodation will be made available if required

Application forms are obtainable from the Borough Engineer, Town Hall, South Shields and should be returned not later than 10 a.m. Tuesday, 6th December, 1955.

R. S. YOUNG,
Town Clerk.
3819

COUNTY BOROUGH OF CROYDON.
ASSISTANT QUANTITY SURVEYORS.

Applications are invited for the following permanent posts:—

(*a*) SENIOR ASSISTANT. Commencing salary according to experience, progressing by annual increments of up to £70 to a maximum of £1 030 per annum. HOUSING ACCOMMODATION AVAILABLE.

(*b*) ASSISTANT, to work with above. Commencing salary according to qualifications, progressing by annual increments of up to £50 to a maximum of £805 per annum. Excellent opportunity for promotion to Senior Assistants' grade.

For particulars and application form write to Borough Engineer, Town Hall, Croydon.

Applications to be returned to the Borough Engineer not later than 20th December, 1955. 3948

CITY OF CARDIFF.
APPOINTMENT OF ARCHITECTURAL ASSISTANTS.

Applications are invited for the following appointments in the City Surveyor's Department:—
(*a*) SENIOR ARCHITECTURAL ASSISTANT (GENERAL), A.P.T., Grade VII (£900—£1,100 per annum).
(*b*) ASSISTANT ARCHITECT (GENERAL), A.P.T., Grade VI (£825—£1,000 per annum).
(*c*) ASSISTANT ARCHITECT (HOUSING), A.P.T., Grade VII (£900—£1,100 per annum).

Candidates should possess the minimum qualifications and experience prescribed by the National Joint Council for Local Authorities' Administrative, Professional, Technical and Clerical Services for posts in the above-mentioned Grades.

General Conditions of Appointment may be obtained from the undersigned.

The Council will assist in providing housing accommodation for a period for the successful applicants.

Applications, accompanied by the names and addresses of three referees, and endorsed with the description of the post applied for, must be delivered to me not later than the 10th December, 1955.

S. TAPPER-JONES,
Town Clerk.

City Hall, Cardiff.
November, 1955. 3958

CITY OF LEICESTER.
CITY ENGINEER AND SURVEYOR'S DEPT. MAINTENANCE SECTION.

Applications are invited for the appointment of MAINTENANCE ASSISTANTS in the City Surveyor's Department, in Grade A.P.T. V (£750—£900 per annum).

Candidates should be Registered Architects.

The appointments will be subject to the provision of the Local Government Superannuation Act, 1937.

Applicants should have a good knowledge of and be fully experienced in the maintenance of public buildings, preparation of plans, specifications, estimating and schedules, etc. Previous Local Government experience would be an advantage.

The successful candidate will be required to pass a medical examination.

Applications, stating age, qualifications, training and experience, together with the names of not less than two persons to whom reference may be made, should reach the undersigned not later than Thursday, 15th December, 1955.

The Council are unable to assist with Housing Accommodation.

JOHN L. BECKETT, M.Inst.C.E.,
City Surveyor.

Town Hall, Leicester. 3957

MANCHESTER COLLEGE OF TECHNOLOGY
(Faculty of Technology in the University of Manchester).
Appointment of
LECTURER IN BUILDING.

The Governing Body invites applications for a Lectureship in Building in the College of Technology, with the title and status of Lecturer in the University of Manchester.

Candidates should be Graduates of a British University and either Associates of The Royal Institute of British Architects or Professional Associates of The Royal Institution of Chartered Surveyors, with good professional experience.

Salary: £650 per annum, rising by annual increments of £50 to £1,350 per annum. Commencing salary according to qualifications. Superannuation under the F.S.S.U., and family allowances.

Conditions of appointment and form of application may be obtained from The Registrar, College of Technology, Manchester, 1. The last day for the receipt of applications is Monday, 9th January, 1956.

B. V. BOWDEN,
Principal of the College.
3955

FIFE COUNTY COUNCIL.
COUNTY ARCHITECT'S DEPARTMENT.

Applications are invited to fill a number of vacancies in the Schools and Housing Sections of the above department situated at Cupar. The vacancies provide excellent opportunities for keen, hardworking Assistants who are interested in contemporary work. The vacancies are as follows:—

(*a*) QUALIFIED ARCHITECTS. Salary scale £1,000 × £50 to £1,200 per annum. Successful candidates will require to work as Group Leaders and as Senior Architects. Applicants must hold the A.R.I.B.A., and be capable of taking complete responsibility.

(*b*) DRAUGHTSMEN. Salary scale A.P.T. II to IV (£545—£660 per annum). The successful candidates will require to work under Architects, and should be quick and accurate Draughtsmen, having a good knowledge of design and construction.

Consideration may be given to meeting the housing requirements of successful candidates. Medical examination for admission to the Council's superannuation scheme. Applications, stating age, qualifications, and giving full details of experience, present post held and salary, accompanied by copies of recent testimonials, to be lodged with the undersigned not later than 17th December, 1955.

MATTHEW POLLOCK,
County Clerk.

County Buildings, Cupar-Fife. 3970

BOROUGH OF MAIDSTONE.

Applications are invited for the following appointments in the Architectural Section of the Borough Surveyor's Department:—

(1) SENIOR ASSISTANT ARCHITECT, Grade V, A.P.T. Division (£750—£900).

(2) ARCHITECTURAL ASSISTANT, Grade IV, A.P.T. Division (£675—£825).

Applicants for (1) must be Registered Architects, and preference will be given to Associates of the R.I.B.A., with administrative experience. This appointment ranks next to that of Chief Assistant.

Applicants for (2) should have passed the R.I.B.A. Intermediate Examination, or its equivalent at one of the recognised Schools of Architecture, or be in the course of studying for the R.I.B.A. Special Final, and should have considerable office experience.

The posts offer opportunities for interesting work in connection with new housing, and ancillary building, slum clearance, and improvement schemes, and maintenance of civic buildings. The programme for 1956 includes the main shopping centre for a large, newly developed area, and multi-storey flats for slum clearance. Experience in this connection is desirable.

The appointments are subject to N.J.C. Conditions, superannuation and medical examination.

Housing accommodation will be provided, if necessary, and the Council will be prepared to assist in removal expenses.

Applications on forms to be supplied, must reach the undersigned not later than Monday, 19th December.

S. F. DIXON, M.I.MunE., L.R.I.B.A.,
Borough Surveyor.

Palace Avenue, Maidstone.
1st December, 1955. 3952

STEVENAGE DEVELOPMENT CORPORATION.

SENIOR ARCHITECT/PLANNER required to take charge (as Group Leader) of the Planning and Landscape Group in the Chief Architect's Department. Qualifications required: A.M.T.P.I., and preferably A.R.I.B.A. Salary in the range of £960 to £1,240, commencing salary within grade in accordance with experience.

Housing accommodation will be available in due course in an appropriate case.

Applications, giving details of experience and names of two referees, should be sent to the Chief Administrative Officer, Aston House, near Stevenage, Herts., not later than Wednesday, 14th December, 1955. 3963

BOROUGH OF BRIDGWATER.
APPOINTMENT OF JUNIOR ARCHITECTURAL ASSISTANT.

Applications are invited for the above appointment in the Borough Architect's Department, at a salary in accordance with A.P.T. II of the National Scale of Salaries (£560—£640 p.a.).

Applicants must have passed the Intermediate Examination of the R.I.B.A., and have good experience in housing and general works. Housing accommodation will be considered.

Applications, stating age, experience, with the names and addresses of two referees, are to be delivered to the Borough Architect, Town Hall, Bridgwater, not later than Monday, the 12th December, 1955.

H. A. CLIDERO,
Town Clerk.

22nd November, 1955. 3964

CITY OF SHEFFIELD.
APPOINTMENT OF GROUP LEADER ARCHITECT
(EDUCATION AND GENERAL SECTION), GRADE A.P.T. VI.
Salary £825—£1,000.

Applications are invited from suitably qualified persons for the above-mentioned appointment on the staff of the City Architect, Mr. J. L. Womersley, A.R.I.B.A., A.M.T.P.I.

The person appointed will be required to take charge of a group responsible for the design and erection of major public buildings. The appointment offers considerable scope to an enthusiastic and progressive Architect possessing the requisite qualifications, design ability, and experience.

The commencing salary within the above range will be in accordance with the successful candidates experience and qualifications.

Applications, stating age, education and training, qualifications and experience, present and past appointments (with dates and salaries), together with the names and addresses of two persons to whom reference may be made, should reach the undersigned by the 13th December, 1955.

JOHN HEYS.
Town Clerk.

Town Hall, Sheffield. 1. 3967

BOROUGH OF SPENBOROUGH.
BOROUGH ENGINEER AND SURVEYOR'S DEPARTMENT.
ARCHITECTURAL DRAUGHTSMAN, A.P.T. I (£500—£580).

Applicants should be capable draughtsmen, with experience of detail drawings and general architectural work in connection with housing.

The appointment is superannuable, medical examination.

Applications, stating age, experience, and qualifications, together with names and addresses of two referees, to J. Walbank, M.I.Mun.E., F.R.S.I., Borough Engineer, Spenborough Town Hall, Cleckheaton, by 12th December, 1955.

D. COUPE,
Town Clerk.

3969

LONDON ELECTRICITY BOARD.
ARCHITECTURAL DRAUGHTSMEN.

Applications are invited for the above positions in the Architect's Section of the Chief Engineer's Department in Central London.

Applicants should be neat draughtsmen and preferably have had several years' experience in an Architect's office.

The posts are graded under Schedule "D" of the National Joint Board agreement as Grade VI (£535 10s. to £661 10s. per annum, inclusive of London allowance).

Application forms obtainable from Personnel Officer, 46/7, New Broad Street, London, E.C.2, to be returned completed by 15th December, 1955. Please quote Ref. PER/V/1924/A. 3910

NORTH WEST METROPOLITAN REGIONAL HOSPITAL BOARD.

SURVEYING ASSISTANT required in the Architect's Department. Salary within the scale £480 to £670, plus £20—£30 London weighting. Candidates should have passed the Intermediate Examination of the R.I.C.S. (IIIB) and be competent specification writers and able to prepare working drawings for alteration works. The work is varied and interesting, and the Board operates a scheme of financial assistance to students studying for professional examinations. Apply, stating age, qualifications and experience, and giving names of two referees, to Secretary, North West Metropolitan Regional Hospital Board, 11a, Portland Place, W.1, by 14th December. 3921

COUNTY BOROUGH OF CROYDON.
ARCHITECTURAL STAFF.

Applications are invited for the following permanent posts:—

(*a*) ASSISTANT, to lead small teams. Commencing salary according to experience, progressing by annual increments of up to £70, to a maximum of £1,030 per annum.

(*b*) ASSISTANTS, to work with above. Commencing salary according to qualifications, progressing by annual increments of up to £50, to a maximum of £805 per annum. Excellent opportunity for promotion to team leaders' grade.

HOUSING accommodation available for some posts.

For particulars and application form write to Borough Engineer, Town Hall, Croydon.

Applications to be returned to the Borough Engineer not later than 20th December, 1955. 3949

CITY AND COUNTY OF NEWCASTLE UPON TYNE.
CITY ARCHITECT'S DEPARTMENT.

The City Architect will be pleased to receive applications from suitably qualified persons for the following vacancies in the Architectural Sections of his Department:—

(*a*) PRINCIPAL ASSISTANT ARCHITECT, A.P.T. Division, Grade VI (£825—£1,000)—Housing Section.

(*b*) SENIOR ASSISTANT ARCHITECT, A.P.T. Division, Grade V (£750—£900)—Housing or Rehousing Sections.

(*c*) SENIOR ASSISTANT ARCHITECT, A.P.T. Division Grade IV (£675—£825)—Education, Housing, Re-housing or General Sections.

(*d*) ASSISTANT ARCHITECT, A.P.T. Division, Grade III (£600—£725)—Housing Section.

(*e*) ASSISTANT ARCHITECT, A.P.T. Division, Grade II (£550—£640)—Housing Section.

(*f*) ARCHITECTURAL ASSISTANT, A.P.T. Division, Grade I (£500—£580)—Education, Housing or General Sections.

The above are all established posts, and will be subject to the provisions of the Local Government Superannuation Acts, 1937-1953, and to one month's notice on either side. Successful candidates will be required to pass a medical examination.

Applications, stating position applied for, age, particulars of training, qualifications, experience, present and past appointments, together with copies of two recent testimonials or the names and addresses of two persons to whom reference may be made, should be addressed to George Kenyon, Esq., A.R.I.B.A., A.M.T.P.I., City Architect, 18, Cloth Market, Newcastle upon Tyne, 1.

JOHN ATKINSON,
Town Clerk.

Town Hall, Newcastle upon Tyne, 1.
22nd November, 1955. 3943

NOTTINGHAMSHIRE COUNTY COUNCIL.
APPOINTMENT OF AREA PLANNING OFFICER.

Applications are invited for the appointment of Area Planning Officer at a salary of £900 per annum, rising by annual increments of £40 to £1,100 per annum. The person appointed will be employed at the Shire Hall, Nottingham, and will be expected to take up duty on 1st March, 1956.

Applicants must be Corporate Members of the Town Planning Institute and preference will be given to those who also hold recognised qualifications in Engineering, Architecture or Surveying. Applicants should have had considerable experience in the administration of County Development Plans and the general work connected with the Control of Development in Urban and Rural areas of a County.

Further particulars and conditions of the appointment from the County Director of Planning, Shire Hall, Nottingham, to whom applications must be sent not later than 24th December, 1955.

A. R. DAVIS,
Clerk of the County Council.

Shire Hall,
Nottingham. 3976

COUNTY BOROUGH OF BARNSLEY.
BOROUGH ENGINEER AND SURVEYOR AND PLANNING OFFICER'S DEPARTMENT.

Applications are invited for the following appointments:—

(*a*) SENIOR ASSISTANT QUANTITY SURVEYOR, A.P.T. V-VI (£750—£1,000).

(*b*) ARCHITECTURAL ASSISTANT, SPECIAL CLASSES, A.P.T. I (£500—£580); II (£560—£640); Special Grade (£650—£775).

(*c*) ASSISTANT ARCHITECT, A.P.T. III (£600—£725).

(*d*) PLANNING ASSISTANT, SPECIAL CLASSES, A.P.T. I (£500—£580); II (£560—£640); Special Grade (£650—£775).

(*e*) ASSISTANT BUILDING INSPECTOR, A.P.T. I-II (£500—£640).

Applicants should have the following qualifications and experience:—

(*a*) A.R.I.C.S. or similar appropriate qualification, with considerable experience in preparing Bills of Quantities and settling Contractors' accounts.

(*b*) Final or Intermediate R.I.B.A., with experience in design of houses and other public buildings. Progress through appropriate salary grades automatic on satisfying conditions regarding qualifications and experience.

(*c*) Architectural training completed and in process of qualifying experience of municipal housing an advantage.

(*d*) Recently qualified or in process of qualifying and experience with a Planning Authority. Progress through appropriate salary grades automatic on satisfying conditions regarding qualifications and experience.

(*e*) Trained in the building trade, with knowledge of procedure under Building Byelaws.

The appointments will be subject to (i) the Scheme or Conditions of Service for A.P.T.C Staff; (ii) any other general conditions of employment in operation within the Corporation from time to time; (iii) one month's notice on either side; and (iv) to the Local Government Superannuation Acts, for which purpose the successful candidates will be required to pass a medical examination.

In approved cases, assistance will be given in obtaining housing accommodation, and 50 per cent. of removal expenses will be paid.

Applications, stating appointment applied for, age, present and previous appointments with dates, qualifications, experience, etc., together with the names of two persons for reference, should be addressed to the Borough Engineer, Town Hall, Barnsley, to reach him not later than Friday, 16th December, 1955.

Canvassing will disqualify.

A. E. GILFILLAN,
Town Clerk.

Town Hall, Barnsley.
November, 1955. 3971

LANCASHIRE COUNTY COUNCIL.

SECTIONAL PLANNING OFFICER A.P.T. GRADE V (£750—£900) required at ACCRINGTON. Candidates should be qualified architects, a planning qualification in addition would be an advantage.

Considerable experience in Town Map preparation and administration of Town and Country Planning Acts and Orders is essential.

Applications giving age, qualifications, present appointment, experience, etc., and two referees to County Planning Officer, East Cliff County Offices, Preston, by 12th December, 1955. 3978

CITY OF NORWICH.
CITY ARCHITECT'S DEPARTMENT.

Applications are invited for the following appointments on the permanent staff:—

(*a*) ASSISTANT ARCHITECT, salary within Grade A.P.T. V (£750 × £30 — £900 per annum).

(*b*) ASSISTANT ARCHITECT, salary within special grade (£650 × £25 — £775 per annum).

Applicants will be required to work on interesting new projects and must have a recognised professional qualification. Previous experience in educational work would be an advantage.

Appointment (*a*) involves taking charge of a group.

The appointments will be subject to scheme of service, local Government Superannuation Acts, Medical Examination and one month's notice on either side. Canvassing will disqualify.

Housing accommodation can, in certain circumstances, be made available.

Applications, stating age, training, qualifications, experience and whether related to any Member or Officer of the Council, together with names of two referees, must be sent to:—

DAVID PERCIVAL, B.A., A.R.I.B.A., M.T.P.I.
City Architect,
City Hall,
Norwich,

by not later than 5 p.m. on Thursday, 15th December, 1955. 3977

LANCASHIRE COUNTY COUNCIL.

PLANNING ASSISTANTS, A.P.T., Grade IV (£675—£825), and Special Scale (£650—£775), required at Preston, Liverpool, Bury and Manchester. Applicants should be qualified Architects, Engineers or Surveyors; planning experience desirable but not essential. Commencing salary dependent upon qualifications and experience. Applications, stating grade and office applied for, giving age, qualifications, present appointment, experience, etc., and two referees, to County Planning Officer, East Cliff County Offices, Preston, by 12th December, 1955. 3927

BOROUGH OF EDMONTON.
QUANTITY SURVEYING ASSISTANTS required for Borough Architect's Department.
A.P.T. V (£750×£30—£900). Established.
A.P.T. IV (£675×£30—£825). Temporary.
Both grades plus London weighting £10—£30, according to age.
Duties will include work on multi-storey flats. Alternate Saturdays free. Canteen facilities.
Applications on forms from Town Clerk, Town Hall, Edmonton, must be delivered by 10th December. 3973

PADDINGTON BOROUGH COUNCIL require QUANTITY SURVEYOR'S ASSISTANT (A.P.T. II, £590 to £670 p.a.). Candidates should have experience in preparation of estimates, working up, abstracting, billing, site measurement, and work up to final account stage. Preference to candidates being holders of, or at standard of, Inter. R.I.C.S. (Quantities Sub-Division). Applications, stating age, qualifications, experience, present and past appointments, names and addresses of three referees, should be sent to the undersigned (quoting A.257), by 16th December, 1955.

W. H. BENTLEY,
Town Clerk.
Town Hall, Paddington Green, W.2. 3960

CITY AND COUNTY OF NEWCASTLE UPON TYNE.
CITY ARCHITECT'S DEPARTMENT.
The City Architect will be pleased to receive applications from suitably qualified persons for the following vacancies in the Quantity Surveying Section of his Department:—
(*a*) SENIOR QUANTITY SURVEYOR, A.P.T. Division, Grade V (£750—£900).
(*b*) SENIOR ASSISTANT QUANTITY SURVEYOR, A.P.T. Division, Grade IV (£675—£825).
(*c*) ASSISTANT QUANTITY SURVEYOR, A.P.T. Division, Grade III (£600—£725).
The above are all established posts, and will be subject to the provisions of the Local Government Superannuation Acts, 1937-1953, and to one month's notice on either side. Successful candidates will be required to pass a medical examination.
Applications, stating position applied for, age, particulars of training, qualifications, experience, present and past appointments, together with copies of two recent testimonials or the names and addresses of two persons to whom reference may be made, should be addressed to George Kenyon, Esq., A.R.I.B.A., A.M.T.P.I., City Architect, 18, Cloth Market, Newcastle upon Tyne, 1.
JOHN ATKINSON,
Town Clerk.
Town Hall, Newcastle upon Tyne, 1.
22nd November, 1955. 3942

CAMBRIDGESHIRE COUNTY COUNCIL.
COUNTY ARCHITECT'S DEPARTMENT.
Applications are invited for the following appointments:—
(*a*) One QUANTITY SURVEYOR, Grade VI, £825 × £35—£1,000.
(*b*) Two QUANTITY SURVEYORS, Grade V, £750 × £30—£900
(*c*) Two ASSISTANT QUANTITY SURVEYORS, Grade II, £560 × £20—£640.
For appointments (*a*) and (*b*) applicants should be thoroughly experienced in the preparation of estimates, Bills of Quantities, Specifications and settlement of final accounts, and should be Associate Members of the R.I.C.S., and for—
(*c*) Applicants should have had experience in Abstracting, Billing, and site measurement. Preference will be given to applicants who have passed the intermediate stage of the R.I.C.S.
Two ARCHITECTURAL ASSISTANTS, Grade III, £600 × £25—£725.
Applicants should be Registered Architects, and preference will be given to members of the R.I.B.A. They should have experience in the design of public buildings, housing and modern schools, building construction, the preparation of specifications and site supervision.
The appointments are subject to the Local Government Superannuation Acts 1937 to 1953, the National Scheme of Conditions of Service, a satisfactory medical examination, and termination by one month's notice on either side
Applications, stating age, present salary, present and previous appointments, details of training and experience, together with one recent testimonial and the names and addresses of two referees, should be submitted to the undersigned not later than Thursday, 8th December, 1955.
CHARLES PHYTHIAN,
Clerk of the County Council.
Shire Hall,
Cambridge.
15th November, 1955. 3837

MINISTRY OF WORKS require ARCHITECTURAL ASSISTANTS for drawing offices in London, Edinburgh and various provincial offices, with at least three years' training, experience in an architect's office and of Inter. R.I.B.A. standard. London salary £463 to £725 p.a., elsewhere slightly less. Starting pay according to age and experience, prospects of promotion and permanency. State age, details of training and experience, to Chief Architect, Ministry of Works, A27 (F), Abell House, John Islip Street, London, S.W.1. 3168

SURREY COUNTY COUNCIL.
Applications invited for appointment of ASSISTANT ARCHITECT, GRADE III, £600×£25—£725 p.a., plus London allowance. Preference given applicants who have passed Inter. R.I.B.A.
Full details and present salary with three copy testimonials to County Architect, County Hall, Kingston, as soon as possible. 3889

COUNTY BOROUGH OF BLACKBURN.
Applications invited for the following established Architectural posts:—(*a*) ARCHITECTURAL ASSISTANT A.P.T. Special Grade (£650—£775). (*b*) ARCHITECTURAL ASSISTANT A.P.T. Grade 1 or 2 (£500—£640) according to experience. Candidates must have the necessary qualifications and experience relative to the posts. Applications stating age, qualifications and experience, with not less than two testimonials to the Borough Engineer, Town Hall, Blackburn, by December 19th. Housing accommodation will be made available if required.
CHAS. S. ROBINSON,
Town Clerk.
3975

STEVENAGE DEVELOPMENT CORPORATION.
CHIEF ARCHITECT'S DEPARTMENT.
Applications are invited for post as JUNIOR ARCHITECT, on N.J.C. salary scale, A.P.T. IV (£675×£30—£825 per annum). Commencing salary will be fixed according to qualifications and experience.
Candidates should have completed a course at a recognised School of Architecture, or have passed the Final Examination of the R.I.B.A.
Housing accommodation will be available in due course in an appropriate case.
Applications, giving details of experience and names of two referees, should be sent to the Chief Administrative Officer, Aston House, near Stevenage, Herts., not later than Thursday, 8th December, 1955. 3923

BOROUGH OF BARKING.
DEPARTMENT OF THE BOROUGH ARCHITECT.
APPOINTMENT OF ASSISTANT ARCHITECT, GRADE A.P.T. IV.
Applications are invited from Associates of the Royal Institute of British Architects for the above appointment, on Grade A.P.T. IV (£675×£30 to £825, plus London weighting £20 to £30 per annum, according to age).
Applications, on forms to be obtained from the Borough Architect, Town Hall, Barking, should reach the undersigned not later than 9 a.m., 12th December, 1955.
E. R. FARR,
Town Clerk.
Town Hall, Barking, Essex. 3914

LEYTON COMMITTEE FOR EDUCATION (IN THE COUNTY OF ESSEX).
APPOINTMENT OF ARCHITECTURAL ASSISTANT.
Applications are invited for the permanent appointment of an Architectural Assistant, A.P.T. Grade III, £630—£755 per annum, including London Weighting (£30) which is reduced according to scale where the age is less than 26. The successful applicant will be employed by the Essex County Council and will work in the School Architect's Section of the Borough Engineer and Surveyor's Department, Town Hall, Leyton, E.10.
Alternate Saturday mornings free of duty and canteen facilities available.
Details and form of application from the Borough Education Officer, Kirkdale Road, Leytonstone, E.11, to whom they should be returned by Thursday, 15th December, 1955.
D. J. OSBORNE,
Town Clerk.
Town Hall,
Leyton, E.10. 3867

BUCKS COUNTY COUNCIL.
Applications are invited for the appointment of ASSISTANT ARCHITECTS on Architects Special Scale, £650—£775 in the County Architect's Department; commencing salary according to experience and qualifications.
Vacancies at present exist in some higher grades. To encourage continuity of service it is the policy in Bucks in suitable cases to promote existing members of the department to fill vacancies in higher grades.
The appointments are superannuable and subject to medical examination.
A weekly allowance of 25s. and return fare home once every two months may be paid for six months to newly appointed married officers of the Council unable to find accommodation.
Applications, on forms to be obtained from F. B. Pooley, County Architect, County Offices, Aylesbury, must be returned by 12th December, 1955. 3846

METROPOLITAN BOROUGH OF HOLBORN.
BOROUGH ARCHITECT'S DEPARTMENT.
JUNIOR ASSISTANT ARCHITECT required. Varied work, including Libraries, Baths and Housing. R.I.B.A. Intermediate or equivalent. Salary A.P.T. III (£600—£725, plus London weighting). Application with two referees to Town Clerk, Town Hall, High Holborn, W.C.1, by 12th December, 1955. 3933

DURHAM COUNTY COUNCIL—STAFF VACANCIES.
PLANNING DEPARTMENT.
LANDSCAPE ARCHITECT. Salary within the range A.P.T. II (£560—£640), to Special Grade (£650—£775), according to qualifications and experience.
RESEARCH ASSISTANT, Grade I, A.P.T. (£500 to £580 p.a.). Applicants must have a degree in either Geography, Economics or Sociology.
Forms and particulars from the County Planning Officer, 10, Church Street, Durham. Closing date: 14th December, 1955.
J. K. HOPE,
Clerk of the County Council.
3941

BRECONSHIRE COUNTY COUNCIL.
PLANNING DEPARTMENT.
Applications are invited for the established appointment of CHIEF ASSISTANT in the County Planning Department at a salary in accordance with A.P.T. Grade V (£750—£900 per annum). Candidates must have passed or obtained exemption from the final examination of the Town Planning Institute and should have had considerable experience in a planning office. Further particulars and conditions of appointment will be sent on request. Applications must be received by the undersigned not later than 31st December, 1955.
C. M. S. WELLS,
Clerk of the County Council.
County Hall,
Brecon. 3898

BOROUGH OF TAUNTON.
ARCHITECT'S DEPARTMENT.
Applications are invited for the post of ARCHITECTURAL ASSISTANT (salary A.P.T. Grade II—III), £560—£625 per annum, in the Borough Housing Architect's Department.
The appointment will be made on Grade A.P.T. II (preference being given to applicants who have passed the Intermediate examination of the Royal Institute of British Architects, and will be subject to the National Scheme of Conditions of Service and to the provisions of the Local Government Superannuation Acts. When the successful candidate passes the final examination of the R.I.B.A., he will (subject to satisfactory service) proceed to Grade A.P.T. III.
Consideration may be given to the provision of housing accommodation if required.
Applications together with the names and addresses of two referees should be submitted to C. Bacon, F.R.I.B.A., Borough Housing Architect, Flook House, Station Road, Taunton, not later than 5th December, 1955.
L. ATWELL,
Town Clerk.
Municipal Buildings,
Taunton. 3891

CARDIGANSHIRE COUNTY COUNCIL.
Applications are invited for the undermentioned vacancies in the County Architect's Department, County Hall, Aberaeron:—
(*a*) SENIOR QUANTITY SURVEYOR (A.P.T. Grade VI, VII—£825—£1,100).
(*b*) ASSISTANT ARCHITECT (A.P.T. Grade IV—£675—£825).
(*c*) ARCHITECTURAL ASSISTANT (A.P.T. Grade II—£560—£640).
(*d*) ARCHITECTURAL ASSISTANT (A.P.T. Grade I, II—£500—£640).
Candidates for (*a*) should be Associate Members of the R.I.C.S., (*b*) Associate Members of the R.I.B.A., (*c*) and (*d*) have passed the Intermediate Examination of the R.I.B.A.
Commencing salary according to qualifications and experience.
Application forms and conditions of appointment can be obtained from the County Architect and must be returned to the undersigned not later than 31st December, 1955.
J. E. R. CARSON,
Clerk of the Cardiganshire County Council.
Swyddfa'r Sir,
Marine Terrace, Aberystwyth. 3984

NATIONAL COAL BOARD—N.W. DIVISION
DIVISIONAL HEADQUARTERS.
Applications are invited for the following posts:—
1. ARCHITECTURAL ASSISTANT GRADE II: Experience in the preparation of working drawings under supervision with good standard of draughtsmanship necessary; preference given to applicants working for R.I.B.A. intermediate examination.
2. QUANTITY SURVEYOR'S ASSISTANT GRADE II: Applicants should have experience in a Quantity Surveyor's office and be capable of working up dimensions, abstracting, writing Bills of Quantities, checking accounts and taking site measurements under supervision.
Applicants must be of Intermediate Examination standard of the R.I.C.S.
3. JUNIOR ARCHITECTURAL ASSISTANT: Applicants must show promise of becoming good architectural draughtsmen. Previous experience in an Architect's office is desirable but not essential. Preference will be given to applicants intending an architectural career.
Salary for posts 1 and 2 according to qualifications and experience and within the scale £520 × £20 to £615 per annum and for post 3 according to age, commencing at £5s. per week at age 15.
Applications for all three posts, stating age, education, qualifications and experience to Establishment Officer, 40, Portland Street, Manchester, 1, by 31st December, 1955. 3983

PEAK PARK PLANNING BOARD.
Applications are invited for the appointment under N.J.C. service conditions of two JUNIOR PLANNING ASSISTANTS salary scale A.P.T. Grade I (£500—£580); consideration will be given to placing the successful applicants within the range of the scale, according to merit. A varied experience in planning work, including draughtsmanship, is desirable. The main part of the work is connected with the preparation of Development Plans and other projects for the National Park and of urban schemes for the areas outside the Park administered by this office as an Area Planning Office of Derbyshire County Council. Apply on forms obtainable from the undersigned, to be returned by the 23rd December, 1955. Canvassing disqualifies. JOHN FOSTER, *Planning Officer*, Aldern House, Bakewell, Derbyshire. 3981

CITY OF BIRMINGHAM.
CITY ARCHITECT'S DEPARTENT.

Applications are invited for the appointment of ASSISTANT PRINCIPAL ARCHITECT in the Housing Design Section, which is responsible for a large housing programme for suburban and central redevelopment areas, including multi-storey flats of both traditional and new-traditional construction, garages and large shopping centres.

The appointment will be within Grade A.P.T. VII (£900—£1,000 per ann.) at a commencing salary according to experience.

Applicants must be Associate Members of the R.I.B.A., or hold an equivalent qualification, and should have an extensive knowledge and experience of design, administration, and organisation of housing schemes.

The post is permanent, superannuable, subject to a medical examination, and to one month's notice on either side.

Applications, endorsed with the heading of the post, stating age, present position and salary, qualifications and experience, together with the names of two persons to whom reference can be made should reach the undersigned not later than 17th December, 1955.

Canvassing disqualifies.

A. G. SHEPPARD FIDLER,
City Architect.

Civic Centre.
Birmingham, 1. 3982

EBBW VALE URBAN DISTRICT COUNCIL.
THE APPOINTMENT OF TEMPORARY ASSISTANT ARCHITECT.
(GRADE IV, £675—£825.)

Applications are invited from Registered Architects, preferably Corporate Members of the R.I.B.A., for the above appointment in the Architect's Department.

The person appointed will be engaged mainly upon duties in connection with preliminary work for the development of the new Civic Centre for a minimum period of three years.

The appointment will be subject to three months' notice in writing on either side and to the successful candidate passing a medical examination.

The Council will provide housing accommodation if required.

Further details and forms of application may be obtained from the undersigned, and forms of application must be returned so as to reach him not later than Wednesday 14th December 1955.

HOWARD J. WILLIAMS.
Clerk of the Council.

Council Offices.
Ebbw Vale, Mon.
24th November, 1955. 3960

COUNTY BOROUGH OF WEST HAM.
BOROUGH ARCHITECT AND PLANNING OFFICER'S DEPARTMENT.

There are vacancies on the permanent staff for:—

(*a*) SENIOR ASSISTANT ARCHITECTS—V (£750—£900).
(*b*) SENIOR ASSISTANT ARCHITECTS—IV (£675—£825).
(*c*) ARCHITECTURAL ASSISTANT—I/II (£500—£640).
(*d*) CHIEF ASSISTANT, PLANNING—VII (£900—£1,100).
(*e*) SENIOR ASSISTANT, PLANNING—IV (£675—£825).
(*f*) PLANNING ASSISTANT—I/II (£500—£640).

London allowance in addition.

Post (*a*) and (*b*) applicants should be A.R.I.B.A. or Registered Architect; (*c*) Inter. R.I.B.A. standard with office experience; (*d*) must be A.M.T.P.I. and additional qualification—A.R.I.B.A. or A.R.I.C.S.—an advantage. Responsible for Planning Administration generally. Experience in replanning of blitzed or obsolete urban areas required; (*e*) Architect/Planner; (*f*) experienced in general planning work.

Application forms and details from Borough Architect and Planning Officer, Thomas E. North, O.B.E., F.R.I.B.A., Dist. T.P., M.T.P.I., 70, West Ham Lane, Stratford, E.15. (Returnable by Tuesday, 20th December, 1955.) 3985

Architectural Appointments Vacant

4 lines or under, 7s. 6d.; each additional line, 2s.

The engagement of persons answering these advertisements must be made through a Local Office of the Ministry of Labour or a Scheduled Employment Agency if the applicant is a man aged 18-64 inclusive or a woman aged 18-59 inclusive unless he or she or the employment is excepted from the provisions of the Notification of Vacancies Order, 1952.

ARCHITECTS' CO-PARTNERSHIP require unmarried, qualified, experienced ASSISTANT in their Lagos office. Maximum tour 14 months. Flat provided. Write 44, Charlotte Street, London, W.1, or telephone Langham 5791. 3274

ASSISTANT of Intermediate Standard required by Norfolk Architect. Reply with details of experience and salary required to Box 3478.

ARCHITECTS' CO-PARTNERSHIP require qualified ASSISTANT with experience. Write 44, Charlotte Street, London, W.1, or Telephone Langham 5791. 3275

DEACON & LAING, 9, St. Paul's Square, Bedford, have a further vacancy for a keen ASSISTANT, under 30, for a variety of interesting work. 3344

ARCHITECTURAL ASSISTANTS, of R.I.B.A. Final or Intermediate standard (or equivalent), required immediately for interesting and varied work in private practice, 50 miles London. Salary in accordance with age and experience. Please send full details to Box 3345.

ARCHITECTURAL ASSISTANT required in busy London Office with varied practice. Good salary and prospects for suitable applicant. 5-day week. Write giving particulars of age, qualifications, experience, etc., to Box 736, c/o 7, Coptic St., W.C.1. 3226

TWO JUNIOR ASSISTANTS required, with about 2 years' drawing office experience, to work on modernisation programme. Travelling is entailed. Canteen facilities. Salary according to ability. Apply by letter, giving full details, to Mac Fisheries, Ltd., Architects' Department, Little Trinity Lane, E.C.4; reference MG/BT/D. 3830

VACANCIES occur in busy and varied medium sized London architect's practice for JUNIOR ASSISTANTS, salaries varying from £400 to £700 according to experience. Good prospects for the right person. Reply with full particulars to H. & H. M. Lidbetter, F/F.R.I.B.A., 2, Verulam Buildings, Gray's Inn, W.C.1. 3735

ARCHITECTURAL ASSISTANT, age under 30, Intermediate standard, required for Architect's Department of prominent Liverpool company. Superannuation scheme. Apply, stating age, experience, and salary required, to F. R. Fisher, L.R.I.B.A., 1, North John Street, Liverpool, 2. 3845

COVELL & MATTHEWS urgently require ARCHITECTURAL ASSISTANTS. Salary range £750—£900. Work is varied and interesting, including Hospitals Churches, Housing. Five-day week. Apply in writing to 34, Sackville Street, Piccadilly, W.1. 3849

WANTED urgently: Capable DRAUGHTSMEN for preparing working drawings of industrial buildings from sketch designs. Salary according to experience. Write or telephone to Percy Bilton Ltd., 113, Park Street, W.1. Telephone number MAYfair 8240. 3437

BUSY London Office requires two ARCHITECTURAL ASSISTANTS, approximately Intermediate standard or upwards. Also requires one ASSISTANT with considerable perspective experience, particularly able to do quick interior colour sketches. Five-day week, good salaries. Lewis Solomon, Son & Joseph, 21, Bloomsbury Way, W.C.1. HOL 5108 or 7082. 3483

SENIOR SHOPFITTING DRAUGHTSMAN required by leading London Shopfitters. Salary £800 to £1,000, plus bonus and pension scheme. Box 3018.

ARCHITECTURAL ASSISTANTS. Senior and Junior required, preferably with London practice experience, office and factory buildings. Write, giving particulars of experience, etc., to Messrs. Bates & Sinning, 89, Chancery Lane, W.C.2. 2508

THE London Hospital, Whitechapel, E.1, requires JUNIOR ARCHITECTURAL ASSISTANT. Salary £440 to £650 p.a. according to experience, plus London weighting. Post superannuable. Applications stating age, present salary and brief particulars of experience to be sent to the House Governor. Accommodation is available in Kensington if successful candidate is a woman. 2677

WESTWOOD, SONS & HARRISON, F./F.R.I.B.A., require a SENIOR ARCHITECTURAL ASSISTANT, A.R.I.B.A. standard, with office experience, also JUNIOR ASSISTANT. Apply in writing, giving brief outline of experience and qualifications, to 46, Baker Street, W.1. 3709

ARCHITECTURAL ASSISTANTS urgently required for detailed planning work. Intermediate and Junior. Salary according to experience. Please apply to L. O. L. Hannen & John H. Markham, 7 Victoria Street, Westminster, S.W.1. Tel. Abbey 5861. 3115

SAXONE SHOE COMPANY LTD. requires ASSISTANT ARCHITECT (male or female) or ARCHITECTURAL DRAUGHTSMAN at least of final R.I.B.A. standard. Excellent prospects. Five-day week. Commencing salary not less than £600 p.a. Reply stating qualifications and experience to Secretary, Saxone Shoe Co. Ltd., Kilmarnock. 3762

NORMAN & DAWBARN require ARCHITECTURAL ASSISTANTS, at or above R.I.B.A. Intermediate standard, with not less than 3 years' continuous office experience. Salaries will be in accordance with age, training, length and type of experience, but within the range £650—£850. An interesting and varied programme of work is available. Apply by telephone or letter to 5, Gower Street, London, W.C.1. Langham 5341. 3851

ARCHITECTURAL ASSISTANT for North-East. Competent to prepare measured Surveys, Working Drawings. Apply, with details, Box 3796.

ARCHITECTURAL ASSISTANTS, with imagination and initiative, required by Brighton Office to London practice. Applicants should have progressive ideas and at least 2 years' experience after completion of training. Congenial working conditions; five-day week; staff pension scheme. Salary by arrangement. Apply Box 3848.

ARCHITECTURAL ASSISTANTS required, Intermediate—Final standard, by Architects in Barnet, Hertfordshire, offices for employment on varied work in North London, Hertfordshire, Essex, and Bedfordshire areas. Five-day week. Box 3890.

JUNIOR ASSISTANT required in Architect's Department of Large West London Industrial concern. Good prospects, pension scheme. Apply, stating age, experience, and salary required, to Box 3901.

INTERMEDIATE grade ASSISTANT required: interesting and varied work of contemporary character; modern offices; attractive salary. J. Seymour Harris & Partners, 4, Greenfield Crescent, Edgbaston, Birmingham, 5. 3513

ARCHITECTURAL ASSISTANT, Intermediate standard required. Applicant should be capable of taking control of work from sketch designs to completion. Apply in writing, giving details of salary, qualifications and experience, to W. D. Sterland, Esq., 86, Friar Lane, Nottingham. 3862

ARCHITECTURAL ASSISTANT required in West End Office; able to take charge under supervision of medium-sized jobs, including Churches, Hostels Factories, etc. Telephone for an appointment, Welbeck 8863 or write Box 3860.

RONALD WARD & PARTNERS require several capable ARCHITECTURAL ASSISTANTS, with contemporary outlook and willing to use own initiative. Salary range £400 to £800. Interesting and varied work, home and abroad. Congenial working conditions. Apply 29, Chesham Place, Belgrave Square, S.W.1. Telephone Belgravia 3361. 3855

ARCHITECTURAL ASSISTANT required in N.W. London area with minimum qualification of Intermediate R.I.B.A. Preference will be given to applicants having some experience in the design of industrial buildings and housing. Salary between £500 and £800 p.a., according to qualifications and experience. Write Box AC14069, Samson Clarks, 57-61, Mortimer Street, W.1. 3885

CO-OPERATIVE WHOLESALE SOCIETY LTD. ARCHITECT'S DEPARTMENT MANCHESTER.

APPLICATIONS are invited for the following appointments:—

(*a*) SENIOR ASSISTANT ARCHITECTS, with experience of work on commercial and industrial projects.
(Salary range £820 to £975 per annum.)

(*b*) ASSISTANT ARCHITECTS, capable of preparing working drawings from preliminary details.
(Salary range £550 to £820 per annum.)

There is a five-day week in operation, and both appointments offer prospects of upgrading.

Applications, stating age, experience, qualifications and salary required, to G. S. Hay, A.R.I.B.A., Chief Architect Co-operative Wholesale Society, Ltd., 1, Balloon Street, Manchester 4. 3871

CO-OPERATIVE WHOLESALE SOCIETY LTD., ARCHITECT'S DEPARTMENT LONDON.

ASSISTANT ARCHITECTS WORKER UP, AND SHOP FITTING DRAUGHTSMAN. Applications are invited from suitably qualified persons. Salary on a scale £485—£945 inclusive of L.W., with placing according to age, qualifications and experience. The posts are superannuable, subject to medical examination. Five-day week in operation. Applications stating age, experience, qualifications and salary required to—W. J. Reed, F.R.I.B.A., Chief Architect, Co-operative Wholesale Society Ltd., 99, Leman Street, London, E.1. 2824

CO-OPERATIVE WHOLESALE SOCIETY LTD. ARCHITECT'S DEPARTMENT BIRMINGHAM.

APPLICATIONS are invited for the following appointments in a newly formed Branch Office. Interesting and varied commercial and industrial projects.

(*a*) SENIOR ASSISTANT ARCHITECT, with experience in Store and Shop Design.
(Salary range £820 to £975 per annum.)

(*b*) ASSISTANT ARCHITECTS, capable of preparing working drawings and details from preliminary sketches.
(Salary range £550 to £820 per annum.)

Both appointments offer prospects of upgrading.

Applications, stating age, experience, qualifications and salary required to G. S. Hay, A.R.I.B.A., Chief Architect, Co-operative Wholesale Society, Ltd., 1, Balloon Street, Manchester, 4. 3872

ASSISTANTS required by Architects with extensive London and Provincial practice, including large reinforced concrete and steel-framed structures. Box 3804.

ARCHITECTURAL ASSISTANTS required immediately. Five-day week. Interesting work, pleasant surroundings, in Gray's Inn. Salaries up to £750, according to experience. 'Phone CHAncery 7751. 3810

CO-OPERATIVE WHOLESALE SOCIETY, LTD. ARCHITECT'S DEPARTMENT, MANCHESTER. APPLICATIONS are invited for the appointment of an ASSISTANT LAND AND BUILDING SURVEYOR, with sound practical experience in land surveying by chain and theodolite and levelling. Additionally a knowledge of building construction is necessary for the survey of existing buildings.

The salary range is £550 and £820 per annum, and a five-day week is in operation.

Applications, stating age, experience, qualifications, and salary required, should be addressed to G. S. Hay, A.R.I.B.A., Chief Architect, Co-operative Wholesale Society, Ltd., 1, Balloon Street, Manchester, 4. 3873

SENIOR ASSISTANT ARCHITECT required immediately in busy and varied practice in the West Riding of Yorkshire. Applicants should be Associate Members of R.I.B.A. and have had considerable experience, preferably in Schools, Commercial or Industrial work. Contemporary outlook. Salary £1,000 per annum, according to experience.

JUNIOR ARCHITECTURAL ASSISTANTS, at Intermediate R.I.B.A. standard, with a minimum of two years' office experience. Salary according to qualifications and experience. There is a pension scheme in operation, and there are good prospects for promotion and upgrading. Apply with full particulars to J. G. L. Poulson, Esq., L.R.I.B.A., 29, Ropergate, Pontefract. 3877

THE BAHRAIN PETROLEUM CO., LTD., BAHRAIN, PERSIAN GULF.

APPLICATIONS are invited from JUNIOR QUANTITY SURVEYORS for position in the Engineering Department. Position open is in Building and General Construction work, involving industrial buildings of steel frame and concrete block or asbestos sheeting construction; dwellings; steel, wood-frame and concrete structures; and other projects in the civil engineering field.

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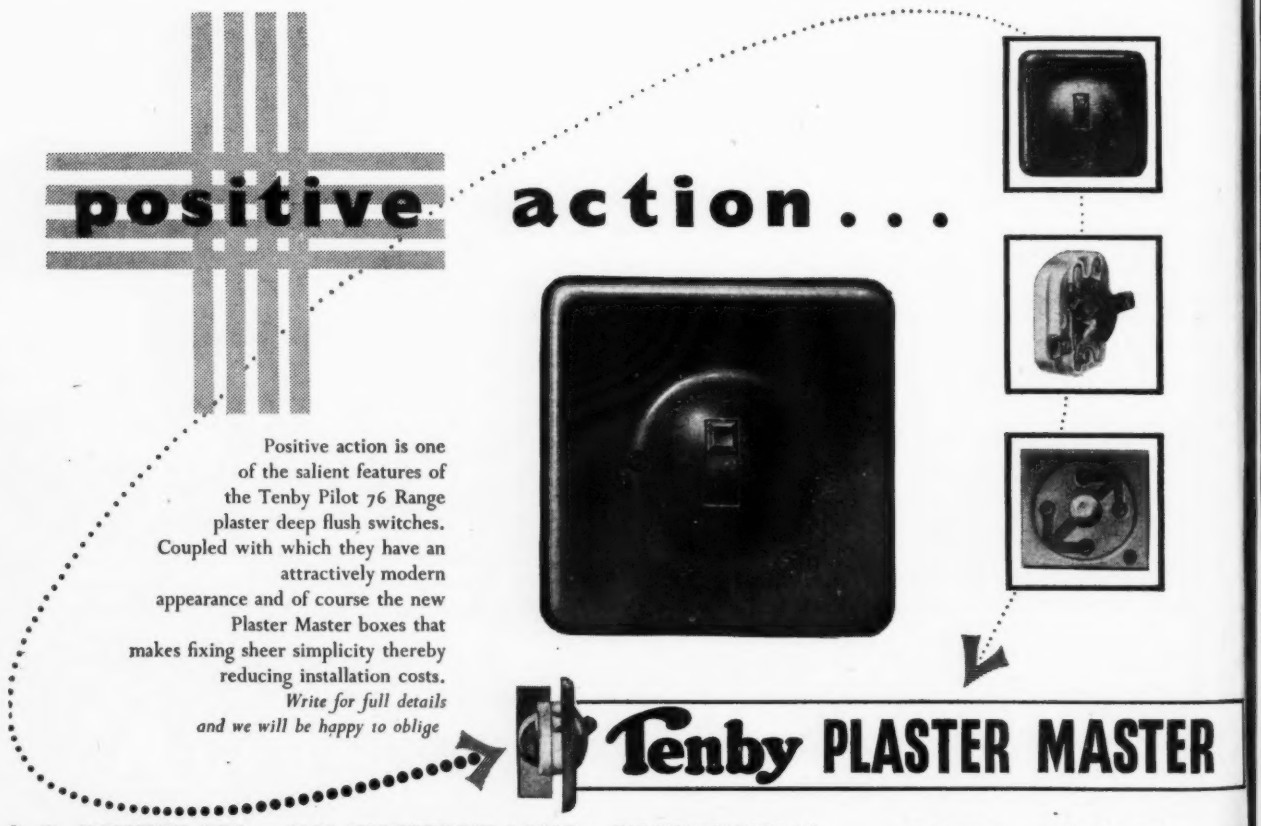
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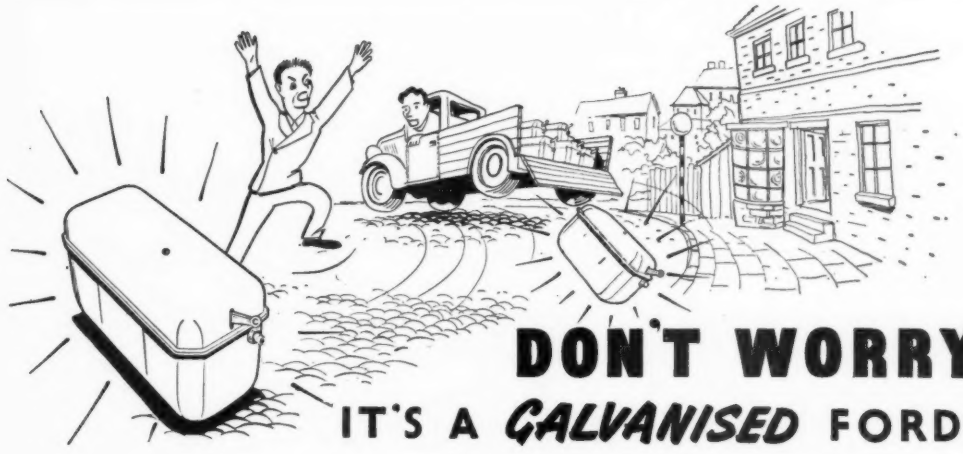
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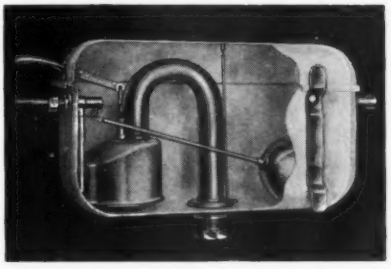
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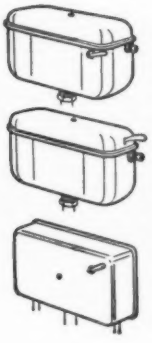


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